

10560670.trn

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NEWS	14	APR 07	CA/CAPLUS CLASS Display Streamlined with Removal of Pre-IPC 8 Data Fields
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NEWS	16	APR 07	MEDLINE Coverage Is Extended Back to 1947

NEWS EXPRESS FEBRUARY 15 10 CURRENT WINDOWS VERSION IS V8.4.2,
AND CURRENT DISCOVER FILE IS DATED 15 JANUARY 2010.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010

=> ile regf

ILE IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter

"HELP COMMANDS" at an arrow prompt (=>).

=> file reg

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

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Property values tagged with IC are from the ZIC/VINITI data file
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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

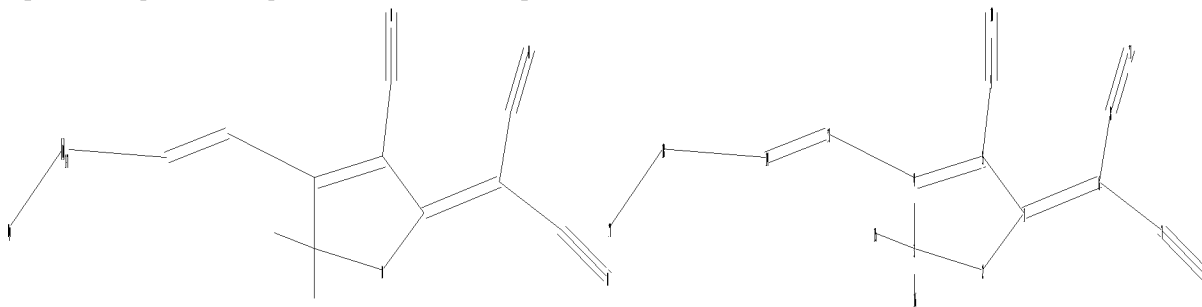
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10560670.str



chain nodes :

6 7 8 9 17 18

ring nodes :

1 2 3 4 5

ring/chain nodes :

10 11 12 13 14 15 16

chain bonds :

1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10 14-18 17-18

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ring/chain bonds :

13-14

ring bonds :

1-2 1-5 2-3 3-4 4-5

exact/norm bonds :

1-2 1-5 2-3 3-4 4-5 7-12 8-11 9-10 13-14 14-18 17-18

exact bonds :

1-6 3-15 3-16 4-13 5-9 6-7 6-8

Match level :

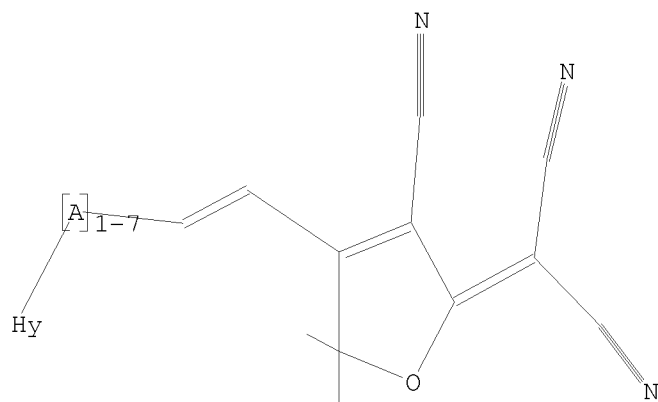
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:Atom
18:CLASS

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 14:57:54 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 59 TO ITERATE

100.0% PROCESSED 59 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 720 TO 1640

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 14:57:59 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 1014 TO ITERATE

10560670.trn

100.0% PROCESSED 1014 ITERATIONS
SEARCH TIME: 00.00.01

14 ANSWERS

L3 14 SEA SSS FUL L1

=> d scan

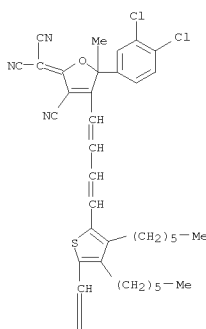
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L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[4-[5-[2-[4-[bis(2-

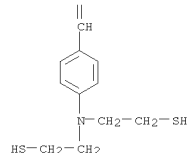
mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanilidene]-, polymer with
1,1'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[1H-pyrrole-2,5-dione] and 4,4'-thiobis[benzenethiol]
MF (C47 H52 Cl2 N4 O S3 . C20 H4 F8 N2 O4 . C12 H10 S3):x
CI PMS

CM 1

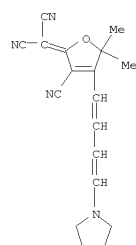
PAGE 1-A



PAGE 2-A



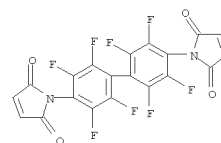
L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[4-(1-pyrrolidinyl)-1,3-butadien-1-yl]-2(5H)-furanilidene]-
MF C18 H18 N4 O



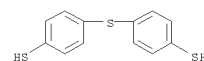
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

CM 2



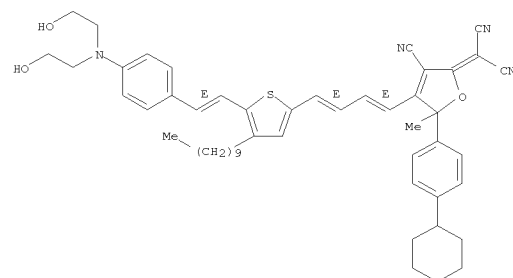
CM 3



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):111

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanilidene]-
MF C51 H60 N4 O3 S

Double bond geometry as shown.

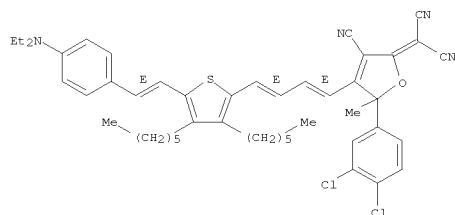


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5-(3,4-dichlorophenyl)-4-[(1E,3E)-4-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(5H)-furanylidene]-
MF C47 H52 Cl2 N4 O S

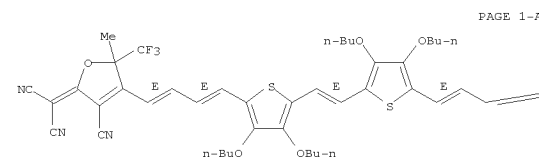
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

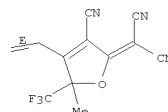
L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2,2'-[(1E)-1,2-ethenediylbis[(3,4-dibutoxy-5,2-thiophenediyl)-(1E,3E)-1,3-butadiene-4,1-diyl[3-cyano-5-methyl-5-(trifluoromethyl)-4-furanyl-2(5H)-ylidene]]]bis-
MF C54 H52 F6 N6 O6 S2

Double bond geometry as shown.



PAGE 1-A

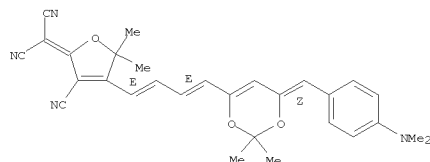
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-4-[(4Z)-4-[[4-(dimethylamino)phenyl]methylene]-2,2-dimethyl-4H-1,3-dioxin-6-yl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C29 H28 N4 O3

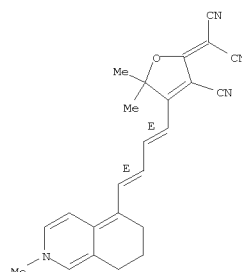
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(2,6,7,8-tetrahydro-2-methyl-5-isoquinoliny)]-1,3-butadien-1-yl]-2(5H)-furanylidene]-
MF C24 H22 N4 O

Double bond geometry as shown.

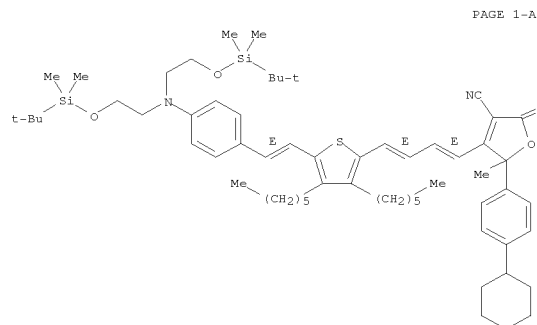


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanlidene]-
 MF C65 H92 N4 O3 S Si2

Double bond geometry as shown.



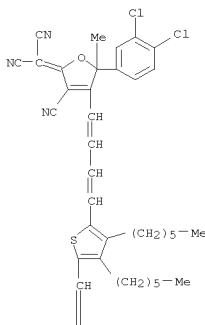
PAGE 1-B



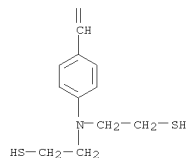
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[4-[5-[2-[4-[bis(2-mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlidene]-
 MF C47 H52 Cl2 N4 O S3
 CI CCM

PAGE 1-A

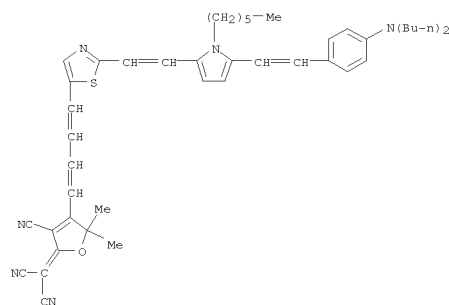


PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

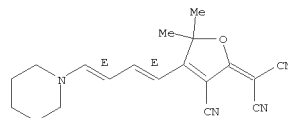
L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[4-[2-[5-[2-[4-(dibutylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furanlidene]-
 MF C45 H52 N6 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(1-piperidinyl)-1,3-butadien-1-yl]-2(5H)-furanlidene]-
 MF C19 H20 N4 O

Double bond geometry as shown.

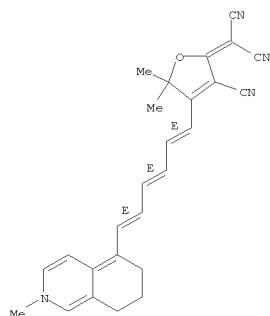


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-6-(2,6,7,8-tetrahydro-2-methyl-5-isoquinolinyl)-1,3,5-hexatrien-1-yl]-2(5H)-furanlydene]-
MF C26 H24 N4 O

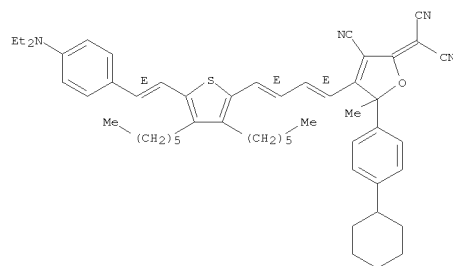
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E,3E)-4-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(5H)-furanlydene]-
MF C53 H64 N4 O S

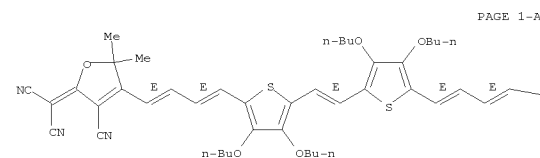
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

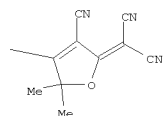
L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2,2'-[[(1E)-1,2-ethenediylbis[(3,4-dibutoxy-5,2-thiophenediyl)-(1E,3E)-1,3-butadiene-4,1-diyl(3-cyano-5,5-dimethyl-4-furanyl-2(5H)-ylidene)]]bis-
MF C54 H58 N6 O6 S2

Double bond geometry as shown.



PAGE 1-A

PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

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FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

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<http://www.cas.org/support/stngen/stdoc/properties.html>

=> tra rn l4
L5 TRANSFER L4 1- RN : 172 TERMS
L6 172 L5

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

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FIDE - All substance data, except sequence data
IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN

EPROP - Table of experimental properties
PPROP - Table of predicted properties
PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- PI, SO
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels

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L2 0 S L1
L3 14 S L1 FULL

 FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
L4 11 S L3

 FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

 FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

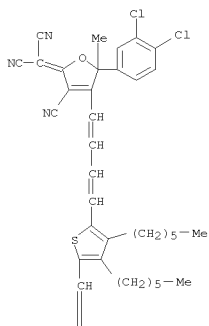
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L6 172 SEA L5
L7 1 S L3 NOT L6

=> d l7 str cn rn ed

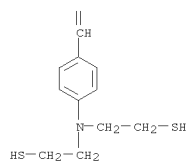
L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

CN Propanedinitrile, 2-[4-[4-[5-[2-[4-[bis(2-

mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanilidene]- (CA INDEX NAME)

	INDEX NAME)
RN	956004-92-5 REGISTRY

ED Entered STN: 27 Nov 2007

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

CAPlus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s otophore

L8 0 OTOPHORE

=> s optophore

1 OPTOPHORE

1 OPTOPHORES

L9 1 OPTOPHORE

(OPTOPHORE OR OPTOPHORES)

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

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FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010
L8 0 S OTOPHORE
L9 1 S OPTOPHORE

=> s l3 and l9
11 L3
L10 0 L3 AND L9

=> s l4 or l9
L11 12 L4 OR L9

=> d cbib abs hitstr 1-
YOU HAVE REQUESTED DATA FROM 12 ANSWERS - CONTINUE? Y/(N):y

L11 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2009:98768 Document No. 152:487904 Strategies for optimizing the second-order nonlinear optical response in zwitterionic merocyanine dyes. Teshome, Ayele; Kay, Andrew J.; Woolhouse, Anthony D.; Clays, Koen; Asselberghs, Inge; Smith, Gerald J. (Department of Chemistry, University of Leuven, Louvain, B-3001, Belg.). Optical Materials (Amsterdam, Netherlands), 31(4), 575-582 (English) 2009. CODEN: CMATET. ISSN: 0925-3467. Publisher: Elsevier B.V..

AB The mol. linear and nonlinear optical (NLO) properties of a series of seven merocyanine dyes have been studied in solvents covering a broad range of polarity (dioxane to dimethylsulfoxide). The benchmark for the series was the "Right hand side" zwitterionic chromophore 1, with a short conjugation path and 4-pyridinylidene as the donor group. Optimization strategies to improve the nonlinear response involved an extension of the conjugation path (with one or two ethenyl groups), annelation (pyridine

to quinoline), variation of the solvent polarity and partial ring locking of the π -conjugated system. All chromophores have as the acceptor moiety the cyanodicyanomethylidenedihydrofuran heterocycle. Optimizing the NLO response of these zwitterionic dyes by decreasing the polarity of the solvent is only possible for the parent chromophore 1. This is because the three other successful strategies employed to further improve the second-order NLO response in polar media, result in detrimental aggregation in nonpolar media.

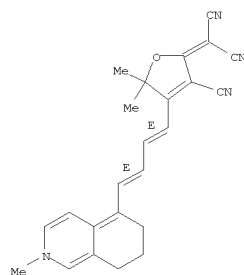
IT 1222190-32-OP 1222190-33-IP
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);

SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (strategies for optimizing second-order nonlinear optical response in zwitterionic merocyanine dyes)

RN 1222190-32-0 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(2,6,7,8-tetrahydro-2-methyl-5-isoquinolinyl)-1,3-butadien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

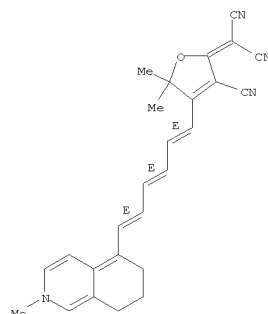
Double bond geometry as shown.

L11 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 1222190-33-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-6-(2,6,7,8-tetrahydro-2-methyl-5-isoquinolinyl)-1,3,5-hexatrien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



L11 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:1066476 Document No. 152:64501
 2-(3-Cyano-5,5-dimethyl-4-[4-(pyrrolidin-1-yl)buta-1,3-dienyl]-2,5-dihydrofuran-2-ylidene)malononitrile dichloromethane solvate. Gainsford, Graeme J.; Bhuiyan, M. Delower H.; Kay, Andrew J.; Robinson, Ward T. (Industrial Research Limited, Lower Hutt, N. Z.). Acta Crystallographica, Section E: Structure Reports Online, E64(9), o1715 (English) 2008.

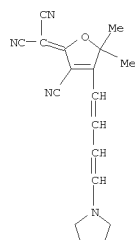
CODEN: ACSEBH. ISSN: 1600-5368. URL: <http://journals.iucr.org/e/issues/2008/09/00/1h2664/1h2664.pdf>
 Publisher: Wiley-Blackwell.

AB The structure of the title compound, C18H18N4O·CH2Cl2, was solved using data collected from a multiple crystal (note high R factors). The crystal structure is dominated by two bifurcated attractive C-H...N(cyano)

interactions. Crystallog. data are given.

IT 1199786-02-1P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(crystal structure of)
 RN 1199786-02-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[4-(1-pyrrolidinyl)-1,3-butadien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)



L11 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:971112 Document No. 150:248702 A pattern for increasing the first hyperpolarizability of a push-pull polyene dye as indicated from DFT calculations. Chafin, Andrew P.; Lindsay, Geoffrey A. (NAVAIR, NAWCWD, Michelson Laboratory, Chemistry Branch, U.S. Navy, China Lake, CA, 93555, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 49(2), 991-992 (English) 2008. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

AB D. functional theory (DFT) calcs. were performed on a polyene dye scaffold, keeping the end groups and bridge length the same but varying the pattern of electron-donating (D) and electron-withdrawing (W) substituents along the polyene bridge. The basic pattern that increased the first hyperpolarizability was to place W substituents on even-numbered

(e) methine carbons, and D substituents on odd-numbered (o) methines (called the {eWoD} pattern). The numbering scheme used herein for the

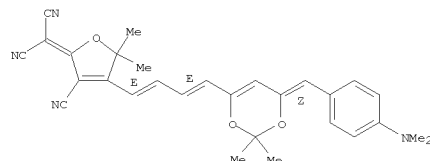
dye scaffold has the #1 methine at the W-terminus of the dye. The {eWoD} pattern polarizes the π bonds along the polyene in the opposite direction that the termini of the dye polarize the dye. By placing cyano and fluorine groups in the {eWoD} pattern along the polyene, a sixfold higher first hyperpolarizability was predicted compared to placing them

in the opposite substitution pattern ({oWeD}). A superimposed but weaker gradient pattern was also observed

IT 1027095-41-5
 RL: PRP (Properties)
 (pattern for increasing the first hyperpolarizability of a push-pull polyene dye as indicated from DFT calcs.)

RN 1027095-41-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-4-[(4Z)-4-[(4-(dimethylamino)phenyl)methylene]-2,2-dimethyl-4H-1,3-dioxin-6-yl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

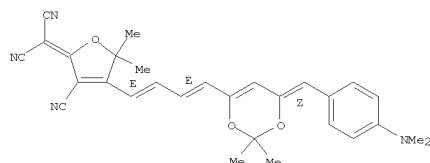
Double bond geometry as shown.



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L11 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:496216 Document No. 148:563456 A Pattern for Increasing the First Hyperpolarizability of a Push-Pull Polyene Dye as Indicated from DFT Calculations. Chafin, Andrew P.; Lindsay, Geoffrey A. (NAVAIR, NAWCWD, Michelson Laboratory, Chemistry Branch, U.S. Navy, China Lake, CA, 93555, USA). Journal of Physical Chemistry C, 112(21), 7829-7835 (English) 2008.
 CODEN: JPCCKK. ISSN: 1932-7447. Publisher: American Chemical Society.
 AB D. Functional theory (DFT) calcons. were performed on a polyene dye scaffold, keeping the end groups and bridge length the same but varying the pattern of electron-donating (D) and electron-withdrawing (W) substituents along the polyene bridge. The basic pattern that increased the first hyperpolarizability was to place W substituents on even-numbered (e) methine carbons, and D substituents on odd-numbered (o) methines (called the {eWoD} pattern). The numbering scheme used herein for the dye scaffold has the #1 methine at the W-terminus of the dye. The {eWoD} pattern polarizes the π bonds along the polyene in the opposite direction that the termini of the dye polarize the dye. By placing cyano and fluorine groups in the {eWoD} pattern along the polyene, a sixfold higher first hyperpolarizability was predicted compared to placing them in the opposite substitution pattern ({oWeD}). A superimposed but weaker gradient pattern was also observed
 IT 1027095-41-5
 RL: PRP (Properties)
 (pattern for increasing the first hyperpolarizability of a push-pull polyene dye as indicated from DFT calcons.)
 RN 1027095-41-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-4-[(4Z)-4-[(dimethylamino)phenyl]methylene]-2,2-dimethyl-4H-1,3-dioxin-6-yl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

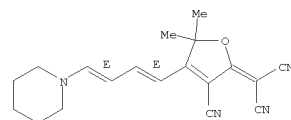
Double bond geometry as shown.



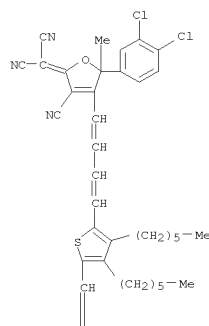
L11 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2007:1271490 Document No. 147:5030570 Mercaptofunctional high hyperpolarizability electrooptical chromophores and high glass temperature, low optical loss, covalently bonded, high hyperpolarizability electrooptical chromophore containing polymers and methods of synthesis. He, Mingqian; Wang, Jianguo (Corning, Inc., USA). U.S. Pat. Appl. Publ. US 20070257237 A1 20071108, 20 pp. (English). CODEN: USXXCO.
 APPLICATION: US 2006-418101 20060503.
 AB The present invention relates generally to mercaptofunctional high $\mu\beta$ EO chromophores and EO polymers, and particularly to mercaptofunctional high $\mu\beta$ EO chromophores and EO polymers useful for making electro-optical devices and systems. Mercaptofunctional high $\mu\beta$ EO chromophores are covalently bonded to poly(imido sulfide) polymers producing high Tg, low optical loss, covalently bonded, high $\mu\beta$ EO chromophore containing polymers. Methods of synthesizing these EO materials using mild polymerization conditions are also described.
 IT 956004-93-6P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (mercaptofunctional high hyperpolarizability electrooptical chromophores and high glass temperature, low optical loss, covalently bonded, high hyperpolarizability electrooptical chromophore containing polymers and methods of synthesis)
 RN 956004-93-6 CAPLUS
 CN Propanedinitrile, 2-[4-[4-[5-[2-[4-[bis(2-mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furan-2-ylidene]-, polymer with 1,1'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[1H-pyrrole-2,5-dione] and 4,4'-thiobis[benzenethiol] (CA INDEX NAME)
 CM 1
 CRN 956004-92-5
 CMF C47 H52 Cl2 N4 O S3

L11 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:148957 Document No. 150:1803140
 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)buta-1,3-dienyl]-2,5-dihydrofuran-2-ylidene]malononitrile. Gainsford, Graeme J.; Bhuiyan, M. Delower H.; Kay, Andrew J.; Spek, Anthony L. (Industrial Research Limited, Lower Hutt, N. Z.). Acta Crystallographica, Section E: Structure Reports Online, E64(2), o503, o503/1-o503/11 (English) 2008. CODEN: ACSEBH. ISSN: 1600-5368. URL: <http://journals.iucr.org/e/issues/2008/02/00/gg3141/gg3141.pdf> OTHER SOURCES: CASREACT 150:180314. Publisher: Blackwell Publishing Ltd..
 AB 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)buta-1,3-dienyl]-2,5-dihydrofuran-2-ylidene]malononitrile, C19H20N4O, crystallizes as twinned crystals containing 2 independent mols. which pack into a 3-dimensional matrix via several C-H...N(cyano) interactions, with C...N ranging 3.324(8)-3.568(8) Å and C-H...N angles of 147-166°. Crystallog. data are given.
 IT 1105024-87-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal and mol. structure of)
 RN 1105024-87-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(1-piperidinyl)-1,3-butadien-1-yl]-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

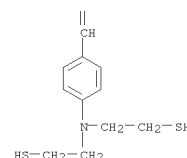
Double bond geometry as shown.



L11 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 1-A



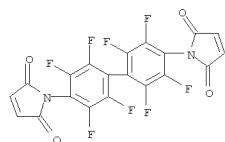
PAGE 2-A



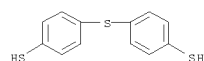
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L11 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



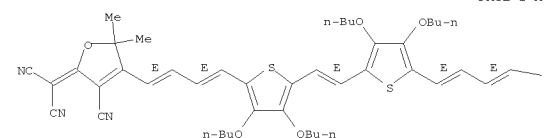
CM 3
CRN 19362-77-7
CMF C12 H10 S3



L11 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2007:41926 Document No. 146:3256680 Two-Photon Absorption in Quadrupolar Bis(acceptor)-Terminated Chromophores with Electron-Rich Bis(heterocycle)vinylene Bridges. Zheng, Shijun; Leclercq, Amalia; Fu, Jie; Beverina, Luca; Padilha, Lazaro A.; Zojer, Egbert; Schmidt, Karin; Barlow, Stephen; Luo, Jingdong; Jiang, Sei-Hun; Jen, Alex K.-Y.; Yi, Yuanping; Shuai, Zhigang; Van Stryland, Eric W.; Hagan, David J.; Bredas, Jean-Luc; Marder, Seth R. (School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). Chemistry of Materials, 19(3), 432-442. (English) 2007. CODEN: CMATEX. ISSN: 0897-4756. OTHER SOURCES: CASREACT 146:3256680. Publisher: American Chemical Society.
AB Two-photon absorption spectra for a range of bis(acceptor)-substituted bis(dibutoxythienyl)ethene and bis(N-hexylpyrrolyl)ethene chromophores were recorded using Z-scan and white-light-continuum pump-probe techniques. All the chromophores studied show strong near-IR two-photon absorption with cross sections at 2400-5900 GM (1 GM = 1 + 10-50 cm4 s/photon) at photon wavelengths between 1.0 and 1.3 μm; cross sections ≤10000 GM can be accessed close to the 1-photon absorption edge. Quantum-chemical calcns. reproduce the exptl. observed variations of the two-photon properties with the chemical structure.
IT 928792-03-4P 928792-05-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (two-photon absorption in quadrupolar bis(acceptor)-terminated chromophores with electron-rich bis(heterocycle)vinylene bridges)
RN 928792-03-4 CAPLUS
CN Propanedinitrile, 2,2'-[(1E)-1,2-ethenediylbis[(3,4-dibutoxy-5,2-thiophenediyl)-(1E,3E)-1,3-butadiene-4,1-diyl[3-cyano-5,5-dimethyl-4-furanyl-2(5H)-ylidene]]bis- (CA INDEX NAME)

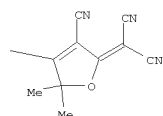
Double bond geometry as shown.

PAGE 1-A



L11 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

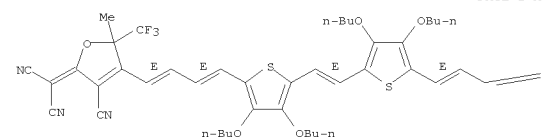
PAGE 1-B



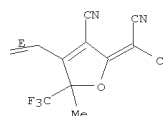
RN 928792-05-6 CAPLUS
CN Propanedinitrile, 2,2'-[(1E)-1,2-ethenediylbis[(3,4-dibutoxy-5,2-thiophenediyl)-(1E,3E)-1,3-butadiene-4,1-diyl[3-cyano-5-methyl-5-(trifluoromethyl)-4-furanyl-2(5H)-ylidene]]bis- (CA INDEX NAME)

Double bond geometry as shown.

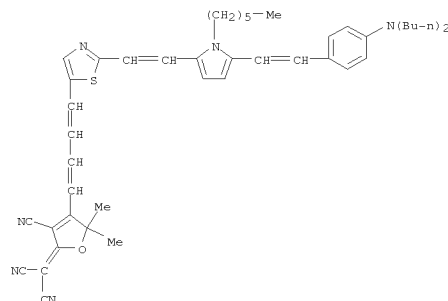
PAGE 1-A



PAGE 1-B



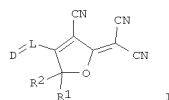
L11 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2005:358523 Document No. 143:777830 Two-Photon Absorption at Telecommunications Wavelengths in a Dipolar Chromophore with a Pyrrole Auxiliary Donor and Thiazole Auxiliary Acceptor. Beverina, Luca; Fu, Jie; Leclercq, Amalia; Zojer, Egbert; Pacher, Peter; Barlow, Stephen; Van Stryland, Eric W.; Hagan, David J.; Bredas, Jean-Luc; Marder, Seth R. (School of Chemistry and Biochemistry, Center for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). Journal of the American Chemical Society, 127(20), 7282-7283. (English) 2005. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 143:77783. Publisher: American Chemical Society.
AB Three new dipolar chromophores based on a dialkylaminophenyl donor, a pyrrole auxiliary donor, a thiazole auxiliary acceptor, and strong heterocyclic acceptors have been synthesized. For one of these compds. we have measured a very large non-degenerate two-photon cross section of ca. 1500 GM in the near-IR telecommunications range using a pump-probe technique. Calcns. indicate the cross section for degenerate two-photon absorption is likely to be ca. 60% of this value.
IT 855774-00-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (two-photon absorption at telecommunications wavelengths in a dipolar chromophore with a pyrrole auxiliary donor and thiazole auxiliary acceptor)
RN 855774-00-4 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[4-[2-[2-[5-[2-[4-(dibutylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



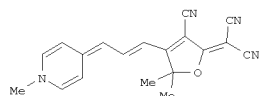
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L11 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2004:1127374 Document No. 142:745550 A preparation of zwitterionic
non-linear [(pyridinylidenealkylene)furanylidene]propanedinitrile
derivatives, useful as optical chromophores (optophores).
Woolhouse, Anthony David; Kay, Andrew John (Industrial Research Limited,
N. Z.). PCT Int. Appl. WO 2004/11043 A1 20041223, 47 pp. DESIGNATED
STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI,
CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,
PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO
2004-NZ124 20040617. PRIORITY: NZ 2003-526561 20030618.

GI



I

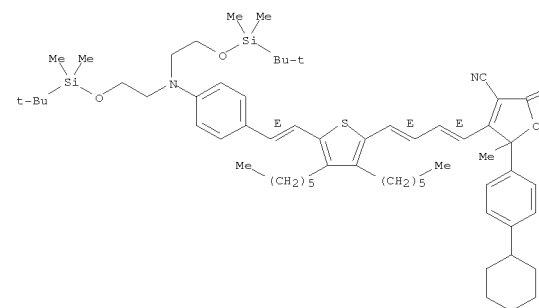


II

AB The invention relates to a preparation of zwitterionic second order
non-linear
optophores of formula I [wherein: L is a linking group comprising
(un)substituted chain of 3,5, or 7 carbon atoms which, together with the
double bond linking D to L forms a conjugated polyenic chain; R1 and R2
are independently selected from alkyl, hydroxyalkyl, or p-C6H4-OAr; D is
a heterocycle]. These optophores display a large and efficient
of non-linear optical response and therefore can be used in the production
of optoelectronic devices. For instance, (furanylidene)propanedinitrile
derivative II (electronic absorption data in DMF: $\lambda_{\text{max}} = 570 \text{ nm}$,
 $\log_{10} \epsilon = 4.86$) was prepared with a yield of 83%.

L11 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



PAGE 1-B



RN 709656-45-1 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E,3E)-4-[5-[(1E)-
2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
yl]-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

L11 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2004:402609 Document No. 141:147753 Photostability of High $\mu\beta$
Electro-Optic Chromophores at 1550 nm. DeRosa, Michael E.; He, Mingqian;
Cites, Jeffrey S.; Garner, Sean M.; Tang, Y. Ruby (Science Technology
Division, Corning Incorporated, Corning, NY, 14831, USA). Journal of
Physical Chemistry B, 108(25), 8725-8730 (English) 2004. CODEN: JPCBPK.
ISSN: 1520-6106. Publisher: American Chemical Society.

AB The authors present the photostability results of seven novel
electrooptic

chromophores made to be used in high-speed fiber optic signal modulators.
The authors measured the photobleaching rate of the chromophores at room
temperature by using a fiber optic pump-probe technique. Thin polymer

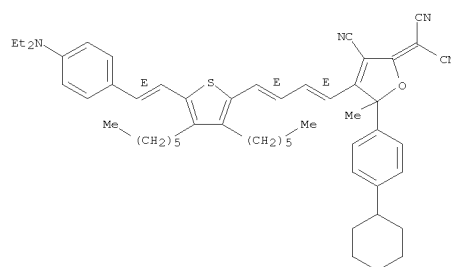
film
guest-host samples were deposited on the end of SMF-28 fiber pigtailed and
bleached by using 100 mW of 1550 nm radiation as the pump. The bleaching
rate was measured by monitoring the main absorption band of the
chromophores by using a 660. nm probe beam that was multiplexed into the
fiber pigtail. The relative photostability is reported as a figure of
merit which is proportional to the 1/e bleaching lifetime of the
chromophore. The authors found the bleaching rate to increase linearly
with incident 1550 nm power at the end of the single-mode fiber up to at
least 100 mW. The authors' results show that the photobleaching rate is
reduced dramatically when the test is conducted in an inert atmospheric

Also the
presence of the singlet O quencher DABCO can be used to increase the
lifetime of the chromophore. The effect that chromophore structure and
polymer host type have on photostability are also discussed.

IT 477892-36-7 709656-45-1 709656-47-3
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(photostability of high $\mu\beta$ electro-optic chromophores at 1550
nm using in fiber optics modulators)
RN 477892-36-7 CAPLUS
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-
dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-
thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-
furanylidene]- (CA INDEX NAME)

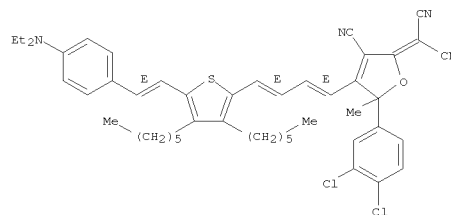
Double bond geometry as shown.

L11 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 709656-47-3 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5-(3,4-dichlorophenyl)-4-[(1E,3E)-4-[5-[(1E)-
2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
yl]-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



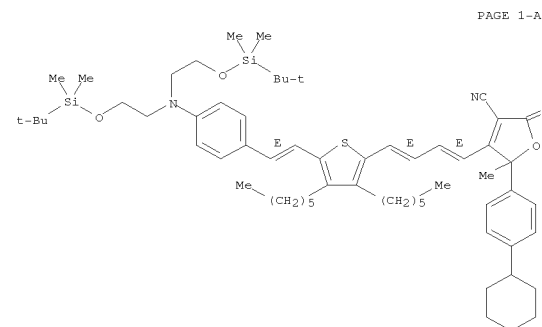
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L11 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN
2004:325411 Document No. 141:711560 Synthesis of New Electrooptic Chromophores and Their Structure-Property Relationship. He, Mingqian; Leslie, Thomas; Garner, Sean; DeRosa, Michael; Citez, Jeffery (Corning Incorporated, Corning, NY, 14831, USA). Journal of Physical Chemistry B, 108(25), 8731-8736 (English) 2004. CODEN: JPCBPK. ISSN: 1520-6106. OTHER SOURCES: CASREACT 141:71156. Publisher: American Chemical Society.

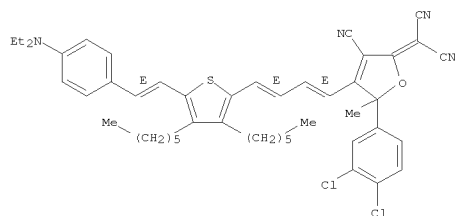
AB Several new high μP chromophores have been synthesized. These chromophores were intentionally designed to study structure-property relationships. The synthetic strategy that was followed has been described in our previous publications. Chromophore photostability was investigated from a structural point of view. Contact and corona poling of the chromophores have also been accomplished with a 70 pm/V r33 being achieved at $\lambda = 1550$ nm. The same chromophores were also studied in two different polymer host systems to compare their dependence of the electrooptic coefficient and stability on the matrix material.

IT 477892-36-7
RL: PRP (Properties)
(preparation of electrooptic chromophores and structure-property relationship)
RN 477892-36-7 CAPLUS
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



L11 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)



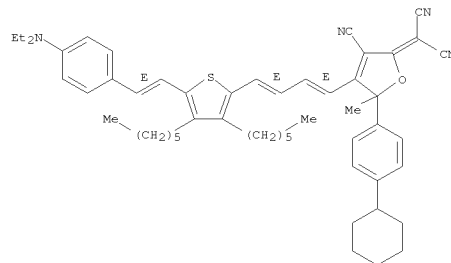
L11 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)

PAGE 1-B



IT 709656-45-1P 709656-47-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of electrooptic chromophores and structure-property relationship)
RN 709656-45-1 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E,3E)-4-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 709656-47-3 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5-(3,4-dichlorophenyl)-4-[(1E,3E)-4-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

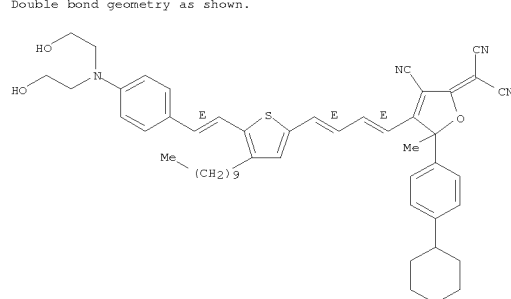
Double bond geometry as shown.

L11 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STN
2002:787052 Document No. 138:246080 Synthesis of Chromophores with Extremely High Electro-optic Activity. 1. Thiophene-Bridge-Based Chromophores. He, Mingqian; Leslie, Thomas M.; Sinicropi, John A. (Corning Incorporated, Corning, NY, 14831, USA). Chemistry of Materials, 14(11), 4662-4668 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. OTHER SOURCES: CASREACT 138:24608. Publisher: American Chemical Society.

AB We have successfully synthesized several new substituted thiophene-based electro-optic chromophores. All of these chromophores have structures similar to FTC but they incorporated our newly designed tricyanovinylidenehydrofuran acceptors. Since these acceptors possess an anisotropic structure, all of the chromophores are very soluble in a wide range of organic solvents. Thermal study of these chromophores by TGA shows all of them are very stable in air. UV spectra indicate the chromophores have a large solvatochromic effect, implying very large mol. nonlinearities.

IT 477892-35-6P 477892-36-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(chromophore; synthesis of thiophene-bridge-based chromophores with extremely high electro-optic activity)
RN 477892-35-6 CAPLUS
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-(hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



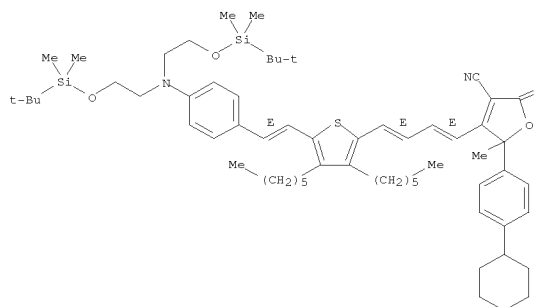
RN 477892-36-7 CAPLUS
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

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L11 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9

=> s electro-optic chromophores

102415 ELECTRO
13 ELECTROS
102427 ELECTRO
(ELECTRO OR ELECTROS)
69104 OPTIC
54862 OPTICS
109521 OPTIC
(OPTIC OR OPTICS)
22778 CHROMOPHORES
L12 26 ELECTRO-OPTIC CHROMOPHORES
(ELECTRO(W) OPTIC(W) CHROMOPHORES)

=> s electroptic chromophores

25 ELECTROPTIC
5 ELECTROPTICS
30 ELECTROPTIC
(ELECTROPTIC OR ELECTROPTICS)
22778 CHROMOPHORES
L13 0 ELECTROPTIC CHROMOPHORES
(ELECTROPTIC(W) CHROMOPHORES)

=> s electrooptic chromophores

10509 ELECTROOPTIC
872 ELECTROOPTICS
11072 ELECTROOPTIC
(ELECTROOPTIC OR ELECTROOPTICS)
22778 CHROMOPHORES

10560670.trn

L14 27 ELECTROOPTIC CHROMOPHORES
 (ELECTROOPTIC(W)CHROMOPHORES)

=> s electrooptic
 10509 ELECTROOPTIC
 872 ELECTROOPTICS
L15 11072 ELECTROOPTIC
 (ELECTROOPTIC OR ELECTROOPTICS)

=> s l15 and chromophore
 30266 CHROMOPHORE
 22778 CHROMOPHORES
 42954 CHROMOPHORE
 (CHROMOPHORE OR CHROMOPHORES)

L16 660 L15 AND CHROMOPHORE

=> s l12 or l14 or l16
L17 679 L12 OR L14 OR L16

=> file reg
FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2010 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

 Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> s c6n/rf
L18 269403 C6N/RF

=> s c5n/rf
SYSTEM LIMITS EXCEEDED - SEARCH ENDED
The search profile you entered was too complex or gave too many
answers. Simplify or subdivide the query and try again. If you have
exceeded the answer limit, enter DELETE HISTORY at an arrow prompt
(=>) to remove all previous answers sets and begin at L1. Use the
SAVE command to store any important profiles or answer sets before

10560670.trn

using DELETE HISTORY.

=> fil tra rn l17

'TRA' IS NOT A VALID FILE NAME

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

ENTER A FILE NAME OR (IGNORE):ignore

'RN' IS NOT A VALID FILE NAME

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

ENTER A FILE NAME OR (IGNORE):end

=> tra rn l17

L19 TRANSFER L17 1- RN : 3023 TERMS

L20 3023 L19

=> s l20 and c5n/rf

7971765 C5N/RF

L21 214 L20 AND C5N/RF

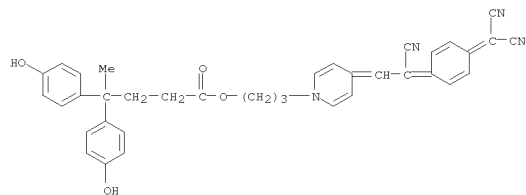
=> d scan 1-

'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

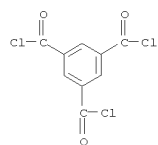
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-
ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with
MF (C37 H32 N4 O4 . C9 H3 Cl3 O3)x
CI PMS

CM 1



CM 2



The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN
SAM - Index Name, MF, and structure - no RN
FIDE - All substance data, except sequence data
IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN

EPROP - Table of experimental properties
PPROP - Table of predicted properties
PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- PI, SO
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels
IBIB -- BIB, indented, with text labels
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OIBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.
The MAX format is the same as ALL plus SPEC.
The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.
HELP FORMATS -- To see detailed descriptions of the predefined formats.
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

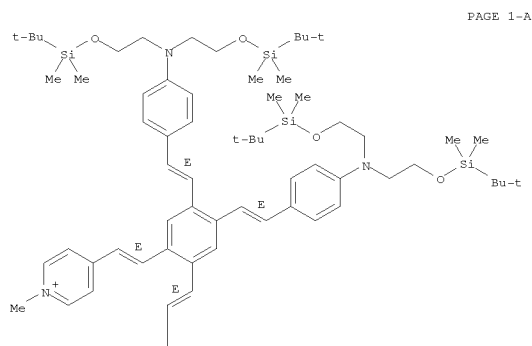
10560670.trn

=> d scan

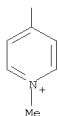
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4,4'-[[4,5-bis[(1E)-2-[4-[bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-1,2-phenylene]di-(1E)-2,1-ethenediyl]bis[1-methyl-, diiodide (9CI)
MF C70 H108 N4 O4 Si4 . 2 I
CI

Double bond geometry as shown.



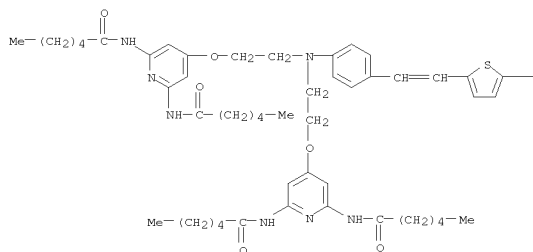
PAGE 2-A



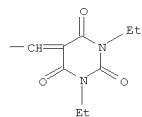
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2000

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Hexanamide, N,N',N'',N'''-[[[4-[2-[5-[(1,3-diethyltetrahydro-2,4,6-trioxo-5(2H)-pyrimidinylidene)methyl]-2-thienyl]ethenyl]phenyl]imino]bis(2,1-ethanediyloxy-4,2,6-pyridinetriyl)]tetrakis- (9CI)
MF C59 H79 N9 O9 S
CI

PAGE 1-A

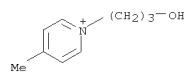


PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

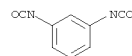
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(3-hydroxypropyl)-4-methyl-
MF C9 H14 N O
CI CCM



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-methyl-, tetrafluoroborate(1-), polymer with 1,3-diisocyanatomethylbenzene (9CI)
MF (C18 H23 N2 O2 . C9 H6 N2 O2 . B F4)x
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

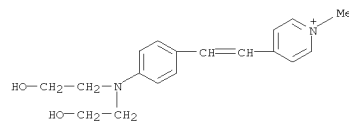
CM 1



D1⁻ Me

CM 2

CM 3

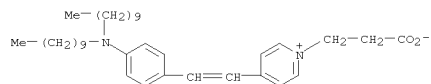


CM 4

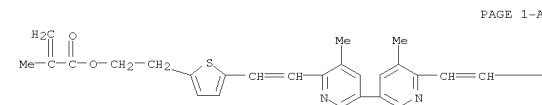


10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(2-carboxyethyl)-4-[2-[4-(didecylamino)phenyl]ethenyl]-,
inner salt
MF C36 H56 N2 O2

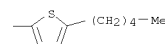


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-[5-[2-[5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl][3,3'-bipyridin]-6-yl]ethenyl]-2-thienyl]ethyl ester
MF C35 H38 N2 O2 S2
CI COM



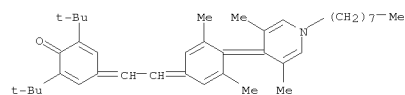
PAGE 1-A

PAGE 1-B



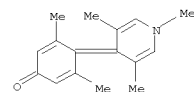
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-[2-[4-(3,5-dimethyl-1-octyl-4(1H)-pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-
MF C39 H55 N O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,5-Cyclohexadien-1-one, 3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-
MF C16 H19 N O
CI COM

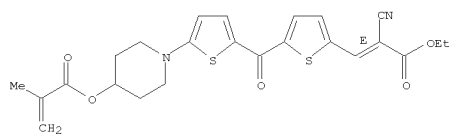


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

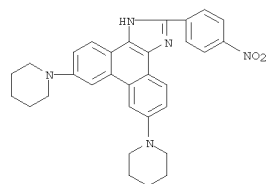
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 2-Propenoic acid,
 2-cyano-3-[5-[[4-[(2-methyl-1-oxo-2-propen-1-yl)oxy]-
 1-piperidinyl]-2-thienyl]carbonyl]-2-thienyl]-, ethyl ester, (2E)-
 MF C24 H24 N2 O5 S2
 CI COM

Double bond geometry as shown.



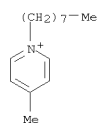
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1H-Phenanthro[9,10-d]imidazole, 2-(4-nitrophenyl)-6,9-di-1-piperidinyl-
 MF C31 H31 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

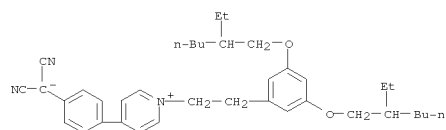
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-methyl-1-octyl-, bromide (1:1)
 MF C14 H24 N . Br



● Br⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

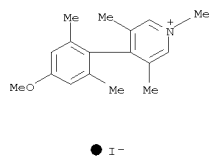
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-[2-[3,5-bis[(2-ethylhexyl)oxy]phenyl]ethyl]-4-[4-(dicyanomethyl)phenyl]-, inner salt
 MF C38 H49 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

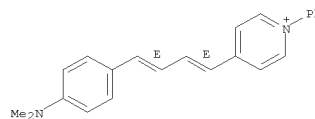
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-(4-methoxy-2,6-dimethylphenyl)-1,3,5-trimethyl-, iodide
(1:1)
MF C17 H22 N O . I



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

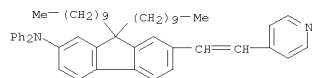
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-phenyl-
MF C23 H23 N2
CI CCM

Double bond geometry as shown.



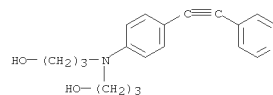
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 9H-Fluoren-2-amine, 9,9-didecyl-N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
MF C52 H64 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

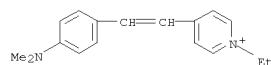
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1-Propanol, 3,3'-[[4-(4-pyridinylethynyl)phenyl]imino]bis- (9CI)
MF C19 H22 N2 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-[4-(dimethylamino)phenyl]ethenyl]-1-ethyl-, iodide (1:1)
MF C17 H21 N2 . I

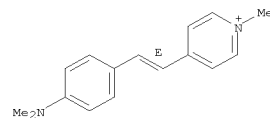


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

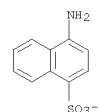
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-, 4-amino-1-naphthalenesulfonate (1:1)
MF C16 H19 N2 . C10 H8 N O3 S

CM 1

Double bond geometry as shown.

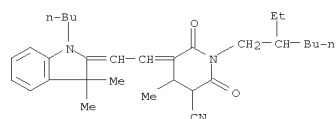


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

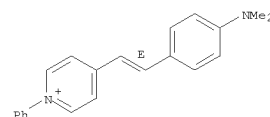
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 3-Piperidinecarbonitrile, 5-[2-(1-butyl-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)ethylidene]-1-(2-ethylhexyl)-4-methyl-2,6-dioxo-
MF C31 H43 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-phenyl-
MF C21 H21 N2
CI CCM

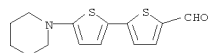
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN [2,2'-Bithiophene]-5-carboxaldehyde, 5'-(1-piperidinyl)-
MF C14 H15 N O S2

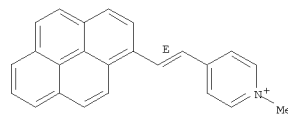


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

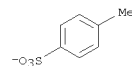
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-methyl-4-[2-(1-pyrenyl)ethenyl]-, (E)-, salt with
4-methylbenzenesulfonic acid (1:1) (9CI)
MF C24 H18 N . C7 H7 O3 S

CM 1

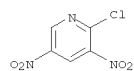
Double bond geometry as shown.



CM 2

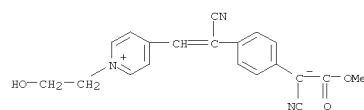


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 2-chloro-3,5-dinitro-
MF C5 H2 Cl N3 O4
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-
1-(2-hydroxyethyl)-, inner salt
MF C20 H17 N3 O3

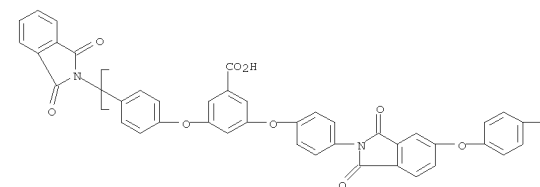


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

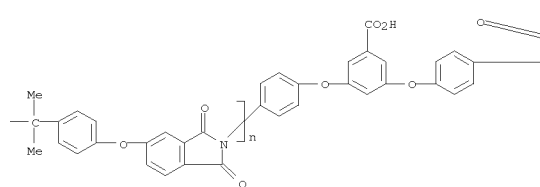
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy(5-carboxy-1,3-phenylene)oxy-1,4-phenylene],
 α -[4-[3-carboxy-5-[4-(1,3-dihydro-1,3-dioxo-2H-isoindol-2-yl)phenoxy]phenoxy]phenyl]- ω -(1,3-dihydro-1,3-dioxo-2H-isoindol-2-yl)-, 3,5-bis(1,1-dimethylethyl)phenyl ester, ester with
 4-[(1Z)-2-cyano-2-[4-(dicyanomethyl)phenyl]ethenyl]-1-(3-hydroxypropyl)pyridinium inner salt (9Cl)
 MF (C50 H32 N2 O10)n C35 H20 N2 O8 . x C20 H16 N4 O . x C14 H22 O
 CM 1

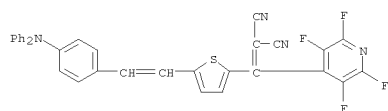
PAGE 1-A



PAGE 1-B



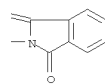
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5-[2-[4-(diphenylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
 MF C33 H18 F4 N4 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

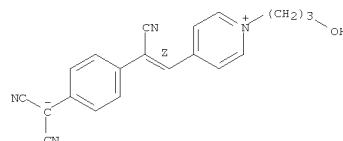
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-C

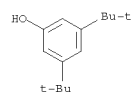


CM 2

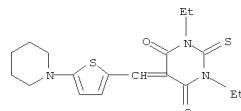
Double bond geometry as shown.



CM 3



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 4,6(1H,5H)-Pyrimidinedione, 1,3-diethyldihydro-5-[[5-(1-piperidinyl)-2-thienyl]methylene]-2-thioxo-
 MF C18 H23 N3 O2 S2



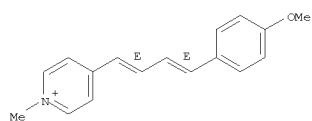
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

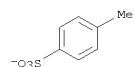
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E,3E)-4-(4-methoxyphenyl)-1,3-butadienyl]-1-methyl-,
salt with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C17 H18 N O . C7 H7 O3 S
CI CCM

CM 1

Double bond geometry as shown.



CM 2



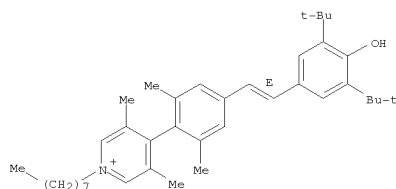
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-methyl-
MF C6 H7 N
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[4-[(1E)-2-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]ethenyl]-2,6-dimethylphenyl]-3,5-dimethyl-1-octyl-
MF C39 H56 N O
CI CCM

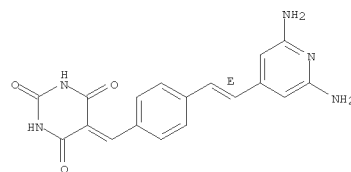
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,4,6 (1H,3H,5H)-Pyrimidinetrione, 5-[[4-[(1E)-2-(2,6-diamino-4-pyridinyl)ethenyl]phenyl]methylene]-
MF C18 H15 N5 O3

Double bond geometry as shown.

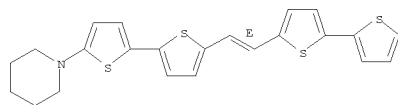


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine,
1-[5'-[(1E)-2-[2,2'-bithiophen]-5-ylethenyl][2,2'-bithiophen]-
5-yl]-
MF C23 H21 N S4

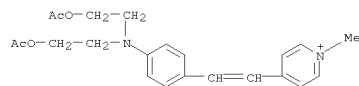
Double bond geometry as shown.



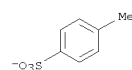
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-1-methyl-
, 4-methylbenzenesulfonate (1:1)
MF C22 H27 N2 O4 . C7 H7 O3 S

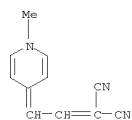
CM 1



CM 2

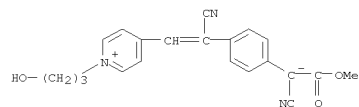


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-
MF C11 H9 N3



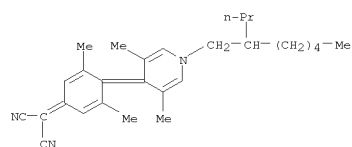
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-
1-(3-hydroxypropyl)-, inner salt
MF C21 H19 N3 O3



10560670.trn

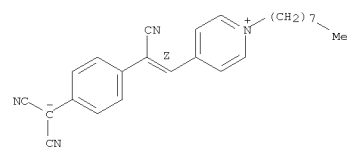
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-
 pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
 MF C28 H37 N3



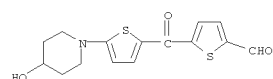
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(12)-2-cyano-2-[4-(dicyanomethyl)phenyl]ethenyl]-1-octyl-,
 inner salt
 MF C25 H26 N4

Double bond geometry as shown.

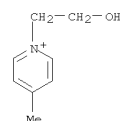


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 2-Thiophenecarboxaldehyde, 5-[[5-(4-hydroxy-1-piperidinyl)-2-
 thienyl]carbonyl]-
 MF C15 H15 N O3 S2



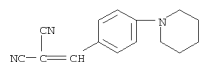
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-(2-hydroxyethyl)-4-methyl-
 MF C8 H12 N O
 CI COM



10560670.trn

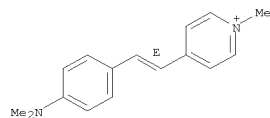
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[4-(1-piperidinyl)phenyl]methylene]-
MF C15 H15 N3
CI CCM



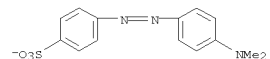
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
MF C16 H19 N2 . C14 H14 N3 O3 S
CM 1

Double bond geometry as shown.

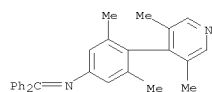


CM 2



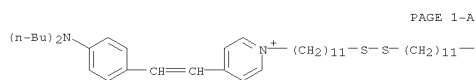
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenamine, 4-(3,5-dimethyl-4-pyridinyl)-N-(diphenylmethylene)-3,5-
dimethyl-
MF C28 H26 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

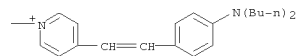
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1,1'-(dithiodi-11,1-undecanediyl)bis[4-[2-[4-(
dibutylamino)phenyl]ethenyl]-, bromide (1:2)
MF C64 H100 N4 S2 . 2 Br



PAGE 1-A

● 2 Br⁻

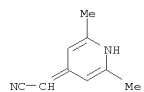
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Acetonitrile, 2-(2,6-dimethyl-4(1H)-pyridinylidene)-
MF C9 H10 N2

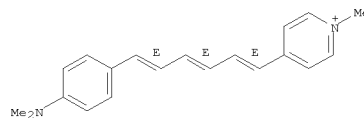


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

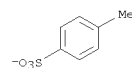
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E,3E,5E)-6-[4-(dimethylamino)phenyl]-1,3,5-hexatrien-1-yl]-1-methyl-, 4-methylbenzenesulfonate (1:1)
MF C20 H23 N2 . C7 H7 O3 S

CM 1

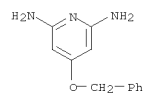
Double bond geometry as shown.



CM 2

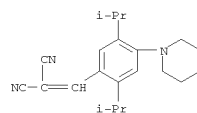


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,6-Pyridinediamine, 4-(phenylmethoxy)-
MF C12 H13 N3 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[2,5-bis(1-methylethyl)-4-(1-piperidinyl)phenyl]methylene]-
MF C21 H27 N3

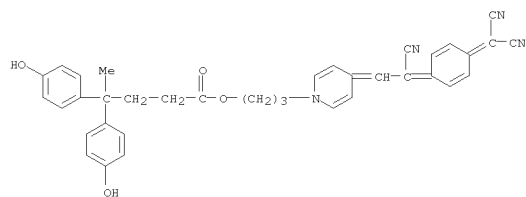


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

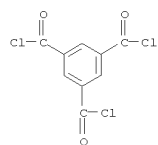
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with
 1,3,5-benzenetricarbonyl trichloride (9CI)
 MF (C37 H32 N4 O4 . C9 H3 Cl3 O3)x
 CI PMS

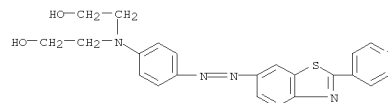
CM 1



CM 2

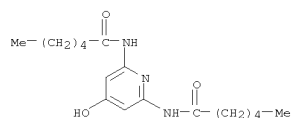


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Ethanol,
 2,2'-[[4-[[2-(4-pyridinyl)-6-benzothiazolyl]azo]phenyl]imino]bis-
 (9CI)
 MF C22 H21 N5 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

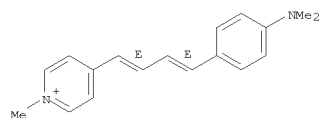
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Hexanamide, N,N'-(4-hydroxy-2,6-pyridinediyl)bis-
 MF C17 H27 N3 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(1E,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-methyl-
 MF C18 H21 N2
 CI COM

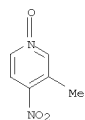
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

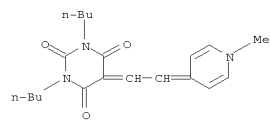
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 3-methyl-4-nitro-, 1-oxide
MF C6 H6 N2 O3
CI CCM



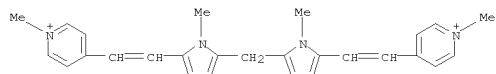
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,4,6(1H,3H,5H)-Pyrimidinetrione, 1,3-dibutyl-5-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-
MF C20 H27 N3 O3

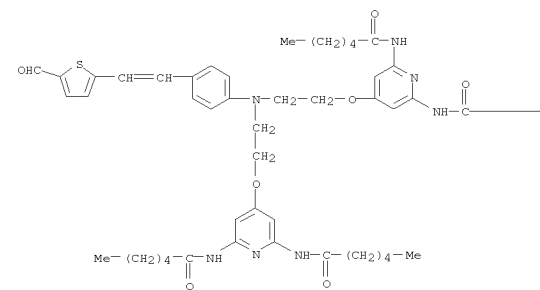


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4,4'-[methylenebis[(1-methyl-1H-pyrrole-5,2-diyl)-2,1-ethenediyl]]bis[1-methyl- (9CI)
MF C27 H30 N4
CI CCM



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Hexanamide, N,N',N'',N'''-[[[4-[2-(5-formyl-2-thienyl)ethenyl]phenyl]imino]bis(2,1-ethanediyl)oxy-4,2,6-pyridinetriyl]]tetrakis- (9CI)
MF C51 H69 N7 O7 S



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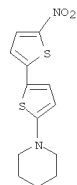
PAGE 1-B

— (CH₂)₄—Me

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

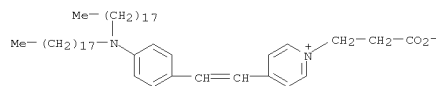
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine, 1-(5'-nitro[2,2'-bithiophen]-5-yl)-
MF C13 H14 N2 O2 S2



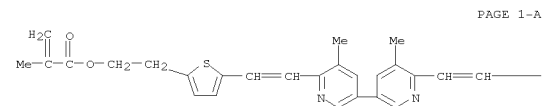
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
1-(2-carboxyethyl)-4-[2-[4-(dioctadecylamino)phenyl]ethenyl]-,
inner salt
MF C52 H88 N2 O2



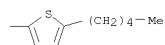
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-(9H-carbazol-9-yl)ethyl ester, polymer
with
2-[5-[2-[5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl][3,3'-bipyridin]-
6-yl]ethenyl]-2-thienyl]ethyl 2-methyl-2-propenoate
MF (C35 H38 N2 O2 S2 . C18 H17 N O2)x
CI PMS

CM 1

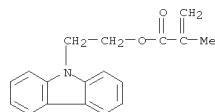


PAGE 1-A

PAGE 1-B

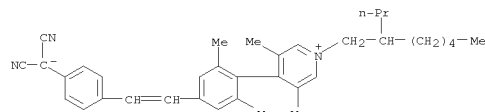


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[4-[2-[4-(dicyanomethyl)phenyl]ethenyl]-2,6-dimethylphenyl]-
3,5-dimethyl-1-(2-propylheptyl)-, inner salt
MF C36 H43 N3

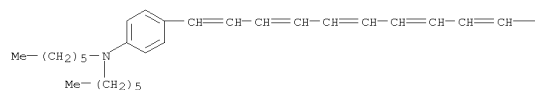


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

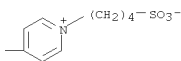
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[10-[4-(dihexylamino)phenyl]-1,3,5,7,9-decapentaen-1-yl]-1-(4-sulfobutyl)-, inner salt
MF C37 H52 N2 O3 S

PAGE 1-A

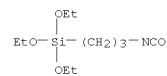


PAGE 1-B

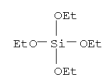


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-butyl-
, tetraphenylborate(1-), polymer with silicic acid (H4SiO4) tetraethyl
ester and triethoxy(3-isocyanatopropyl)silane (9CI)
MF (C24 H20 B . C21 H29 N2 O2 . C10 H21 N O4 Si . C8 H20 O4 Si)x
CI FMS

CM 1



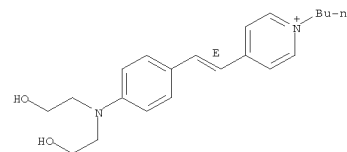
CM 2



CM 3

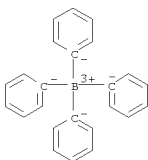
CM 4

Double bond geometry as shown.

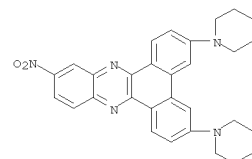


CM 5

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



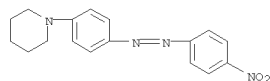
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Dibenzo[a,c]phenazine, 11-nitro-3,6-di-1-piperidinyl-
MF C30 H29 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

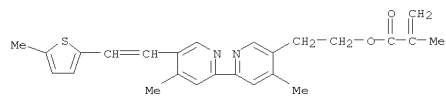
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine, 1-[4-[2-(4-nitrophenyl)diazenyl]phenyl]-
MF C17 H18 N4 O2



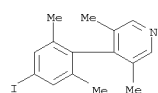
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-[4,4'-dimethyl-5'-[2-(5-methyl-2-thienyl)ethenyl][2,2'-bipyridin]-5-yl]ethyl ester
MF C25 H26 N2 O2 S
CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

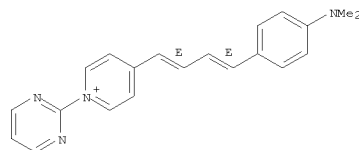
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-(4-iodo-2,6-dimethylphenyl)-3,5-dimethyl-
MF C15 H16 I N



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[(1E,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-(2-pyrimidinyl)-
MF C21 H21 N4
CI COM

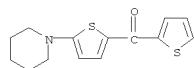
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

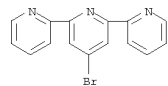
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Methanone, [5-(1-piperidinyl)-2-thienyl]-2-thienyl-
MF C14 H15 N O S2



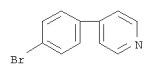
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2,2':6',2''-Terpyridine, 4'-bromo-
MF C15 H10 Br N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-(4-bromophenyl)-
MF C11 H8 Br N
CI CCM

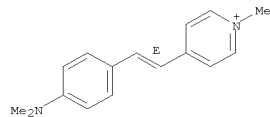


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

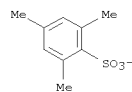
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2,4,6-trimethylbenzenesulfonate (1:1)
MF C16 H19 N2 . C9 H11 O3 S

CM 1

Double bond geometry as shown.



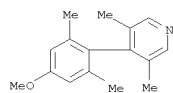
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

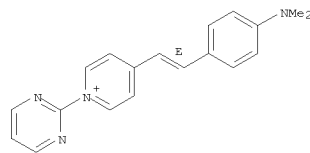
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-(4-methoxy-2,6-dimethylphenyl)-3,5-dimethyl-
MF C16 H19 N O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-(2-pyrimidinyl)-
MF C19 H19 N4
CI CCM

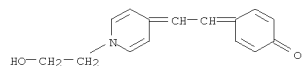
Double bond geometry as shown.



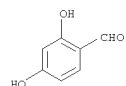
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzaldehyde, 2,4-dihydroxy-, compd. with
4-[2-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]ethylidene]-2,5-
cyclohexadien-1-one, hydrate (2:2:1)
MF C15 H15 N O2 . C7 H6 O3 . 1/2 H2 O

CM 1



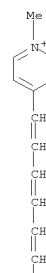
CM 2



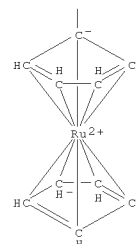
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-methyl-4-(6-ruthenocenyl-1,3,5-hexatrienyl)-, (E,E,E)-,
salt
with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C22 H22 N Ru . C7 H7 O3 S

CM 1

PAGE 1-A



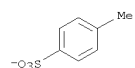
PAGE 2-A



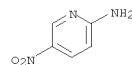
CM 2

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

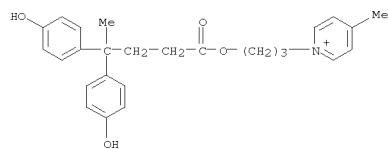


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Pyridinamine, 5-nitro-
MF C5 H5 N3 O2
CI CCM



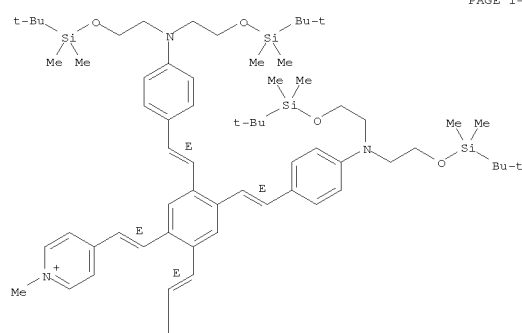
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-[3-[[4,4-bis(4-hydroxyphenyl)-1-oxopentyl]oxy]propyl]-4-methyl-
MF C26 H30 N O4
CI CCM



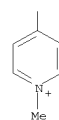
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4,4'-[[4,5-bis[(1E)-2-[4-[bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-1,2-phenylene]di-(1E)-2,1-ethenediyl]bis[1-methyl-, salt with trifluoromethanesulfonic acid (1:2) (9CI)
MF C70 H108 N4 O4 Si4 . 2 C F3 O3 S
CM 1

Double bond geometry as shown.



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PAGE 2-A



CM 2

10560670.trn

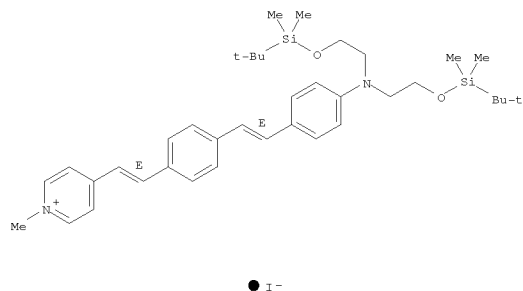
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine
MF C5 H11 N
CI CCM, RPS



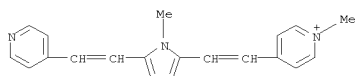
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-[(1E)-2-[4-[bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]phenyl]ethenyl]-1-methyl-, iodide (1:1)
MF C38 H57 N2 O2 Si2 . I

Double bond geometry as shown.

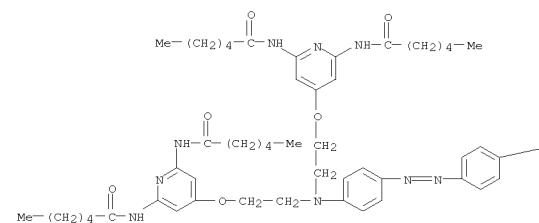


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-methyl-4-[2-[1-methyl-5-[2-(4-pyridinyl)ethenyl]-1H-pyrrol-2-yl]ethenyl]-
MF C20 H20 N3
CI CCM



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Hexanamide, N,N',N'',N'''-[[[4-[(4-nitrophenyl)azo]phenyl]imino]bis(2,1-ethanedioxy-4,2,6-pyridinetriyl)]tetrakis- (9CI)
MF C50 H68 N10 O8

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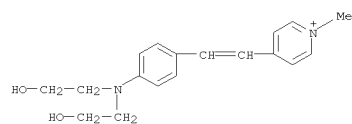
NO₂

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-methyl-,
tetrafluoroborate(1-) (1:1)
MF C18 H23 N2 O2 . B F4
CI CCM

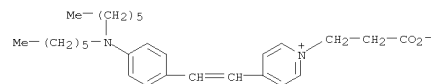
CM 1



CM 2

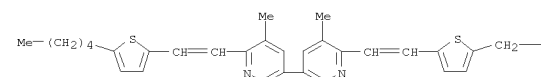


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(2-carboxyethyl)-4-[2-[4-(dihexylamino)phenyl]ethenyl]-,
inner salt
MF C28 H40 N2 O2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Thiopheneethanol, 5-[2-[5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl][3,3'-bipyridin]-6-yl]ethenyl]-
MF C31 H34 N2 O S2

PAGE 1-A

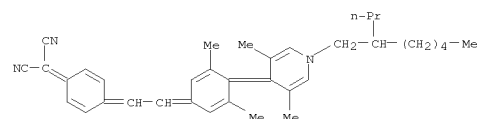


PAGE 1-B

—CH₂—OH

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

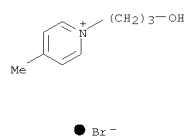
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-2,5-cyclohexadien-1-ylidene]-
MF C36 H43 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

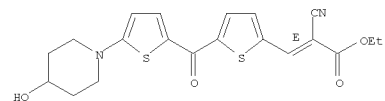
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(3-hydroxypropyl)-4-methyl-, bromide (1:1)
MF C9 H14 N O . Br



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

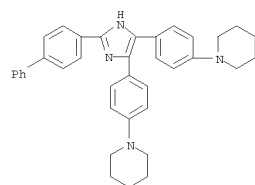
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-cyano-3-[[5-[[5-(4-hydroxy-1-piperidinyl)-2-thienyl]carbonyl]-2-thienyl]-, ethyl ester, (2E)-
MF C20 H20 N2 O4 S2

Double bond geometry as shown.



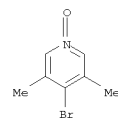
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine, 1,1'-[(2-[1,1'-biphenyl]-4-yl)-1H-imidazole-4,5-diyl]di-4,1-phenylene]bis- (9CI)
MF C37 H38 N4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

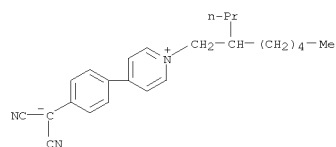
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-bromo-3,5-dimethyl-, 1-oxide
MF C7 H8 Br N O
CI COM



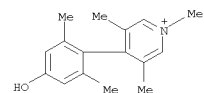
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[4-(dicyanomethyl)phenyl]-1-(2-propylheptyl)-, inner salt
MF C24 H29 N3

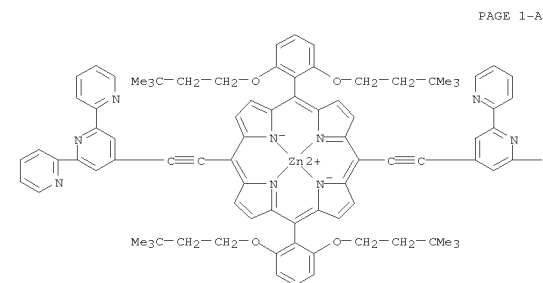


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-(4-hydroxy-2,6-dimethylphenyl)-1,3,5-trimethyl-, iodide (1:1)
MF C16 H20 N O . I



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

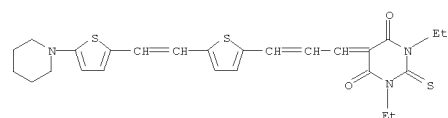
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Zinc,
[5,15-bis[2,6-bis(3,3-dimethylbutoxy)phenyl]-10,20-bis([2,2':6',2''-terpyridin]-4'-ylethynyl)-21H,23H-porphinato(2-)-
*N21,*N22,*N23,*N24]-, (SP-4-1)- (9CI)
MF C90 H86 N10 O4 Zn
CI CCS



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L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 4,6 (1H,5H)-Pyrimidinedione, 1,3-diethylidihydro-5-[3-[5-[2-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-2-thioxo-
MF C26 H29 N3 O2 S3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

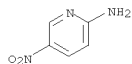
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Pyridinamine, 5-nitro-, phosphate (1:1)
MF C5 H5 N3 O2 . H3 O4 P

CM 1



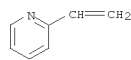
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 2-ethenyl-, homopolymer
MF (C7 H7 N)x
CI PMS, COM

CM 1

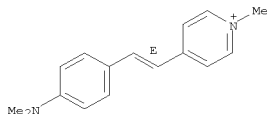


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
1-naphthalenesulfonate (1:1)
MF C16 H19 N2 . C10 H7 O3 S

CM 1

Double bond geometry as shown.



CM 2

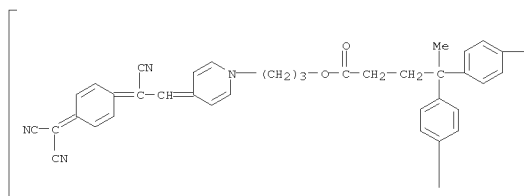


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

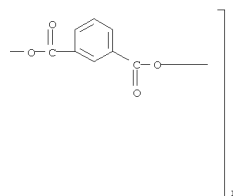
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Poly[oxycarbonyl-1,3-phenylenecarbonyloxy-1,4-phenylene[4-[3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propoxy]-1-methyl-4-oxobutylidene]-1,4-phenylene] (9CI)
MF (C45 H34 N4 O6)n
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

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PAGE 1-B

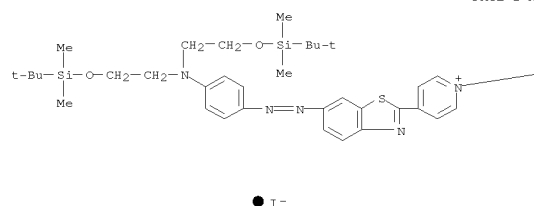


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

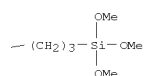
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[[6-[[2-[[4-[[bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]diazanyl]-2-benzothiazolyl]-1-[3-(trimethoxysilyl)propyl]-, iodide (1:1)
 MF C40 H64 N5 O5 S Si3 . I

PAGE 1-A

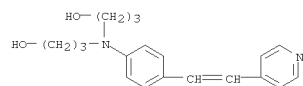


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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1-Propanol, 3,3'-[[4-[2-(4-pyridinyl)ethenyl]phenyl]imino]bis-
 MF C19 H24 N2 O2

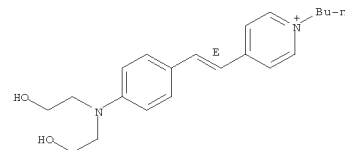


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

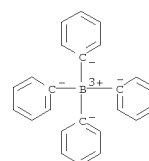
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium,
 4-[(1E)-2-[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-butyl-
 , tetraphenylborate(1-) (9CI)
 MF C24 H20 B . C21 H29 N2 O2
 CI CCM

CM 1

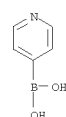
Double bond geometry as shown.



CM 2



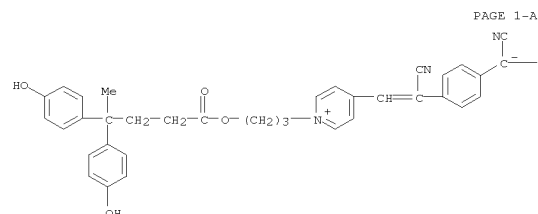
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Boronic acid, B-4-pyridinyl-
 MF C5 H6 B N O2
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-[3-[[[4,4-bis(4-hydroxyphenyl)-1-oxopentyl]oxy]propyl]-4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-, inner salt
MF C38 H35 N3 O6

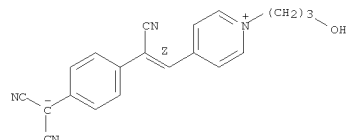


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

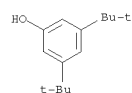
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis(4-aminophenoxy)-, polymer with
5,5'-[[1-methylethylidene]bis(4,1-phenyleneoxy)]bis[1,3-isobenzofurandione], 3,5-bis(1,1-dimethylethyl)phenyl ester, ester with
4-[(12)-2-cyano-2-[4-(dicyanomethyl)phenyl]ethenyl]-1-(3-hydroxypropyl)pyridinium inner salt (9CI)
MF (C31 H20 O8 . C19 H16 N2 O4)x . x C20 H16 N4 O . x C14 H22 O

CM 1

Double bond geometry as shown.

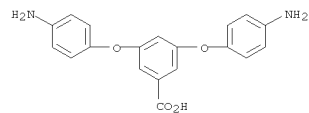


CM 2



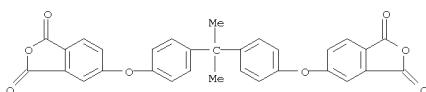
CM 3

CM 4

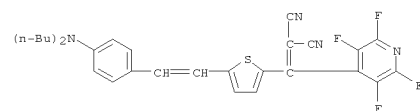


CM 5

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



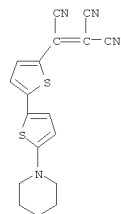
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[5-[2-[4-(dibutylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
MF C29 H26 F4 N4 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,1,2-Ethenetricarbonitrile,
MF 2-[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]-
C18 H14 N4 S2

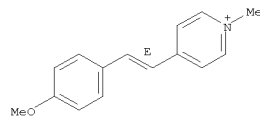


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

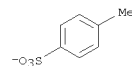
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-(4-methoxyphenyl)ethenyl]-1-methyl-, (E)-, salt with
MF 4-methylbenzenesulfonic acid (1:1) (9CI)
C15 H16 N O . C7 H7 O3 S

CM 1

Double bond geometry as shown.



CM 2



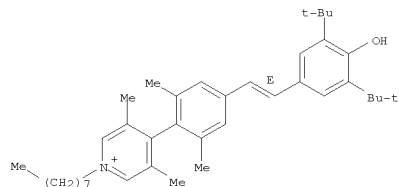
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-ethenyl-
MF C7 H7 N
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[4-[(1E)-2-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]ethenyl]-2,6-dimethylphenyl]-3,5-dimethyl-1-octyl-, iodide
(1:1)
MF C39 H56 N O . I

Double bond geometry as shown.



● I⁻

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 2-Propenoic acid, 2-methyl-, 2,2,2-trifluoroethyl ester, polymer with
 4-ethenylpyridine (9CI)
 MF (C7 H7 N . C6 H7 F3 O2)x
 CI PMS

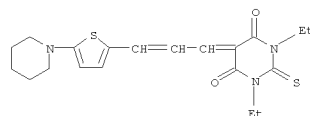
CM 1



CM 2



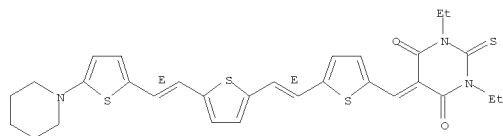
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 4,6(1H,5H)-Pyrimidinedione, 1,3-diethylidihydro-5-[3-[5-(1-piperidinyl)-2-
 thienyl]-2-propen-1-ylidene]-2-thioxo-
 MF C20 H25 N3 O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

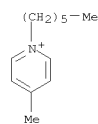
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 4,6(1H,5H)-Pyrimidinedione, 1,3-diethylidihydro-5-[[5-[2-[5-[2-(1-
 piperidinyl)-2-thienyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]methylene]-2-
 thioxo-, (E,E)- (9CI)
 MF C30 H31 N3 O2 S4

Double bond geometry as shown.



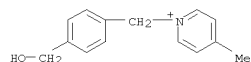
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-hexyl-4-methyl-
 MF C12 H20 N
 CI CCM

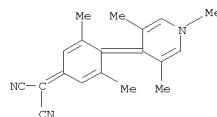


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L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-[[4-(hydroxymethyl)phenyl]methyl]-4-methyl-
MF C14 H16 N O

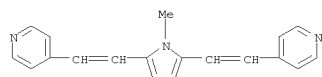


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-
2,5-cyclohexadien-1-ylidene]-
MF C19 H19 N3
CI COM



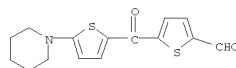
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4,4'-[(1-methyl-1H-pyrrole-2,5-diyl)di-2,1-ethenediyl]bis-
(9CI)
MF C19 H17 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

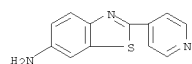
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Thiophenecarboxaldehyde, 5-[[5-(1-piperidinyl)-2-thienyl]carbonyl]-
MF C15 H15 N O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

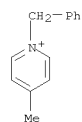
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L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 6-Benzothiazolamine, 2-(4-pyridinyl)-
MF C12 H9 N3 S
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

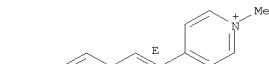
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-methyl-1-(phenylmethyl)-
MF C13 H14 N
CI CCM



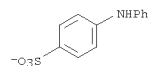
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
4-(phenylamino)benzenesulfonate (1:1)
MF C16 H19 N2 . C12 H10 N O3 S
CM 1

Double bond geometry as shown.



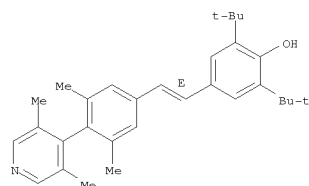
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 2,6-bis(1,1-dimethylethyl)-4-[(1E)-2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]-
MF C31 H39 N O

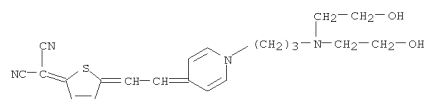
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

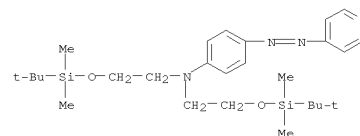
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-
 pyridinylidene]ethylidene]-2(5H)-thienylidene]-
 MF C21 H24 N4 O2 S
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenamine,
 N,N-bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]-4-[2-
 (4-pyridinyl)diazenyl]-
 MF C27 H46 N4 O2 Si2

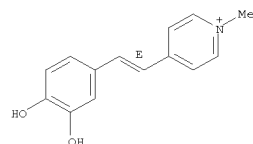


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

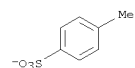
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-(3,4-dihydroxyphenyl)ethenyl]-1-methyl-, (E)-, salt with
 4-methylbenzenesulfonic acid (1:1) (9CI)
 MF C14 H14 N O2 . C7 H7 O3 S

CM 1

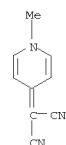
Double bond geometry as shown.



CM 2



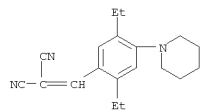
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-(1-methyl-4(1H)-pyridinylidene)-
 MF C9 H7 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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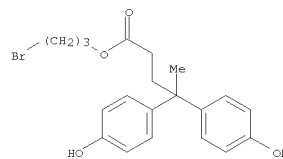
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[2,5-diethyl-4-(1-piperidinyl)phenyl]methylene]-
MF C19 H23 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-bromopropyl ester, compd. with 4-methylpyridine (1:1) (9CI)
MF C20 H23 Br O4 . C6 H7 N

CM 1

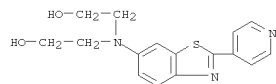


CM 2



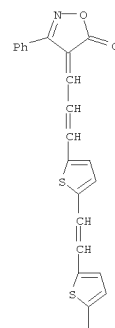
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Ethanol, 2,2'-[[2-(4-pyridinyl)-6-benzothiazolyl]imino]bis-
MF C16 H17 N3 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 5(4H)-Isloxazolone, 3-phenyl-4-[3-[5-[2-[5-(1-piperidinyl)-2-
thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-
MF C27 H24 N2 O2 S2



PAGE 1-A



PAGE 2-A

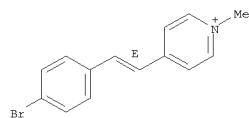
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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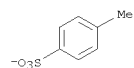
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-(4-bromophenyl)ethenyl]-1-methyl-, (E)-, salt with
 4-methylbenzenesulfonic acid (1:1) (9CI)
 MF C14 H13 Br N . C7 H7 O3 S
 CI

CM 1

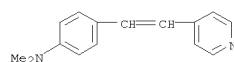
Double bond geometry as shown.



CM 2

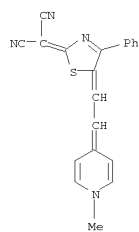


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenamine, N,N-dimethyl-4-[2-(4-pyridinyl)ethenyl]-
 MF C15 H16 N2
 CI CCM



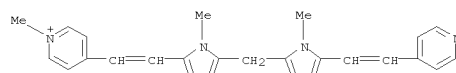
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-4-phenyl-2(5H)-thiazolylidene]-
 MF C20 H14 N4 S
 CI



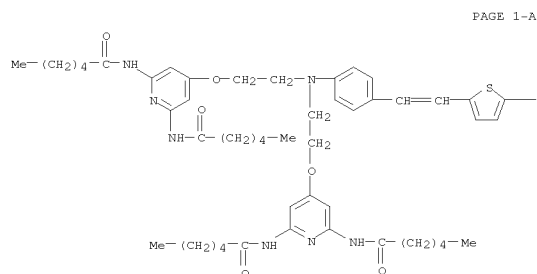
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-methyl-4-[2-[1-methyl-5-[[1-methyl-5-[2-(4-pyridinyl)ethenyl]-1H-pyrrol-2-yl]methyl]-1H-pyrrol-2-yl]ethenyl]-
 MF C26 H27 N4
 CI CCM

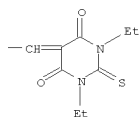


10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Hexanamide, N,N',N'',N'''-[[[4-[2-[5-[(1,3-diethyltetrahydro-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)methyl]-2-thienyl]ethenyl]phenyl]imino]bis(2,1-ethanedioxy)-4,2,6-pyridinetriyl]]tetrakis- (9CI)
MF C59 H79 N9 O8 S2

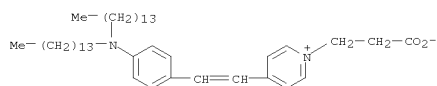


PAGE 1-B

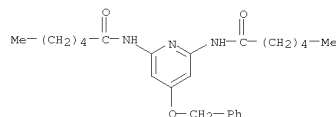


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(2-carboxyethyl)-4-[2-[4-(ditetradecylamino)phenyl]ethenyl]-, inner salt
MF C44 H72 N2 O2



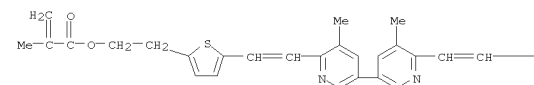
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Hexanamide, N,N'-[4-(phenylmethoxy)-2,6-pyridinediyl]bis-
MF C24 H33 N3 O3



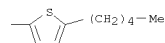
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-[5-[2-[5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl][3,3'-bipyridin]-6-yl]ethenyl]-2-thienyl]ethyl ester, homopolymer
MF (C35 H38 N2 O2 S2)x
CI FMS

CM 1

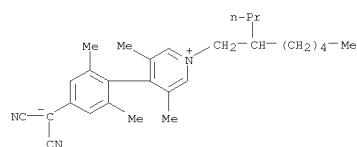


PAGE 1-B



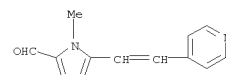
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[4-(dicyanomethyl)-2,6-dimethylphenyl]-3,5-dimethyl-1-(2-propylheptyl)-, inner salt
MF C28 H37 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1H-Pyrrole-2-carboxaldehyde, 1-methyl-5-[2-(4-pyridinyl)ethenyl]-
MF C13 H12 N2 O

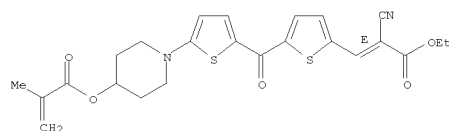


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

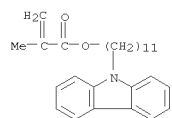
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-cyano-3-[5-[[5-[4-[(2-methyl-1-oxo-2-propenyl)oxy]-1-piperidinyl]-2-thienyl]carbonyl]-2-thienyl]-, ethyl ester, (E)-, polymer with 11-(9H-carbazol-9-yl)undecyl 2-methyl-2-propenoate (9CI)
MF (C27 H35 N O2 . C24 H24 N2 O5 S2)x
CI FMS

CM 1

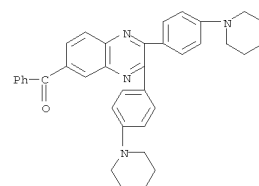
Double bond geometry as shown.



CM 2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Methanone, [2,3-bis[4-(1-piperidinyl)phenyl]-6-quinoxaliny]phenyl-
MF C37 H36 N4 O



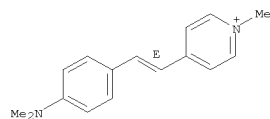
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

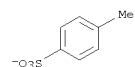
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-, salt
 with 4-methylbenzenesulfonic acid (1:1)
 MF C16 H19 N2 . C7 H7 O3 S
 CI CCM

CM 1

Double bond geometry as shown.

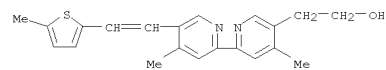


CM 2



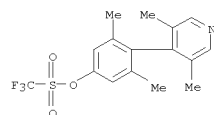
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN [2,2'-Bipyridine]-5-ethanol, 4,4'-dimethyl-5'-[2-(5-methyl-2-thienyl)ethenyl]-
 MF C21 H22 N2 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

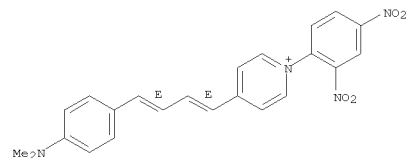
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Methanesulfonic acid, 1,1,1-trifluoro-,
 4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl ester
 MF C16 H16 F3 N O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(1E,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-(2,4-dinitrophenyl)-
 MF C23 H21 N4 O4
 CI CCM

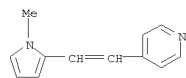
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

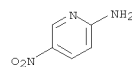
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-[2-(1-methyl-1H-pyrrol-2-yl)ethenyl]-
MF C12 H12 N2
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

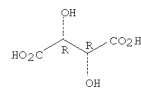
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Pyridinamine, 5-nitro-, (2R,3R)-2,3-dihydroxybutanedioate (1:1)
MF C5 H5 N3 O2 . C4 H6 O6

CM 1



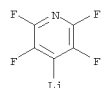
CM 2

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Lithium, (2,3,5,6-tetrafluoro-4-pyridinyl)-
MF C5 F4 Li N
CI CCM

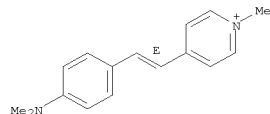


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

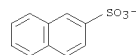
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2-naphthalenesulfonate (1:1)
MF C16 H19 N2 . C10 H7 O3 S

CM 1

Double bond geometry as shown.



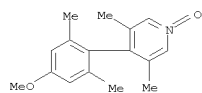
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

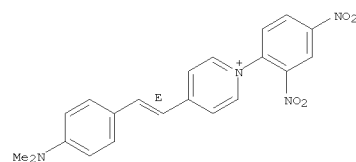
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4-(4-methoxy-2,6-dimethylphenyl)-3,5-dimethyl-, 1-oxide
MF C16 H19 N O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-(2,4-dinitrophenyl)-
MF C21 H19 N4 O4
CI CCM

Double bond geometry as shown.

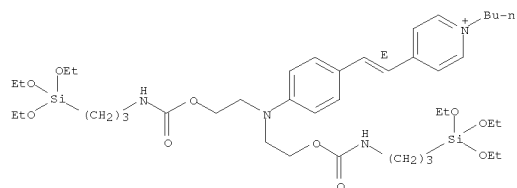


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

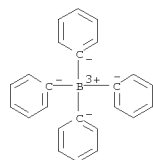
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[2-[4-[bis(9,9-diethoxy-4-oxo-3,10-dioxo-5-aza-9-siladodec-1-yl)amino]phenyl]ethenyl]-1-butyl-, (E)-, tetraphenylborate(1-)
MF C41 H71 N4 O10 Si2 . C24 H20 B

CM 1

Double bond geometry as shown.



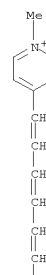
CM 2



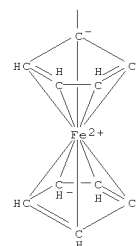
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-(6-ferrocenyl-1,3,5-hexatrienyl)-1-methyl-, (E,E,E)-, salt with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C22 H22 Fe N . C7 H7 O3 S

CM 1

PAGE 1-A



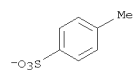
PAGE 2-A



CM 2

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

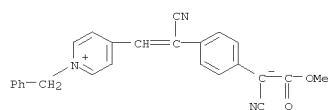


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Pyridinamine, 3-nitro-
MF C5 H5 N3 O2
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

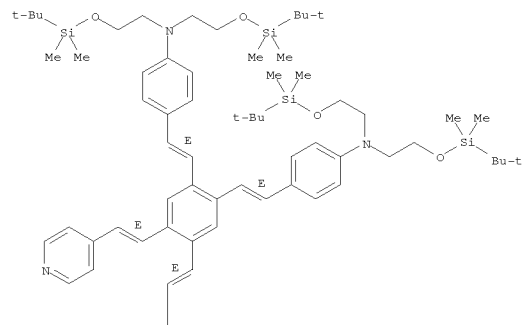
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium,
4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-
1-(phenylmethyl)-, inner salt
MF C25 H19 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenamine,
4,4'-[4,5-bis[(1E)-2-(4-pyridinyl)ethenyl]-1,2-phenylene]di-
(1E)-2,1-ethenediyl]bis[N,N-bis[2-[(1,1-
dimethylethyl)dimethylsilyl]oxy]ethyl]- (9CI)
MF C68 H102 N4 O4 Si4

Double bond geometry as shown.



PAGE 1-A

PAGE 2-A



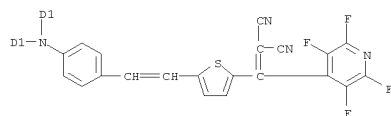
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

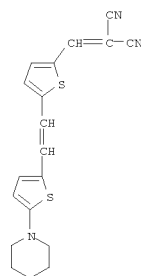
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, [[5-[2-[4-[bis(butylphenyl)amino]phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (9CI)
 MF C41 H34 F4 N4 S
 CI IDS



2 (D1-Bu-n)



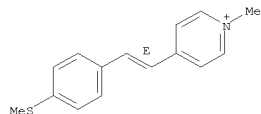
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]-
 MF C19 H17 N3 S2



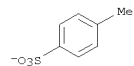
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-methyl-4-[2-[4-(methylthio)phenyl]ethenyl]-, (E)-, salt
 with 4-methylbenzenesulfonic acid (1:1) (9CI)
 MF C15 H16 N S . C7 H7 O3 S
 CM 1

Double bond geometry as shown.



CM 2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridine
 MF C5 H5 N
 CI COM, RPS



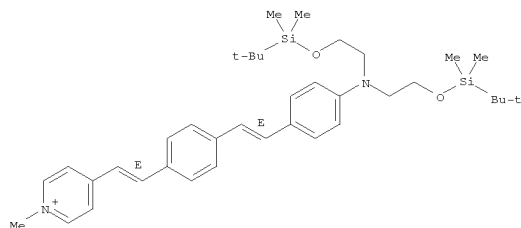
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(1E)-2-[4-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]phenyl]ethenyl]-1-methyl-, 1,1,1-trifluoromethanesulfonate (1:1)
 MF C38 H57 N2 O2 Si2 . C F3 O3 S

CM 1

Double bond geometry as shown.

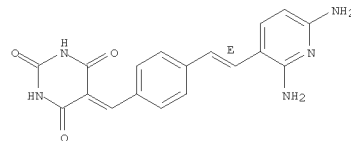


CM 2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 2,4,6-(1H,3H,5H)-Pyrimidinetrione, 5-[[4-[(1E)-2-(2,6-diamino-3-pyridinyl)ethenyl]phenyl]methylene]-
 MF C18 H15 N5 O3

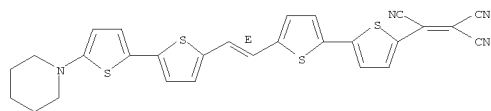
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,1,2-Ethenetricarbonitrile, 2-[5'-[(1E)-2-[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]ethenyl][2,2'-bithiophen]-5-yl]-
 MF C28 H20 N4 S4

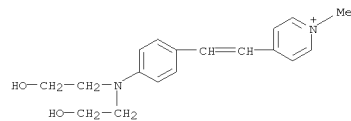
Double bond geometry as shown.



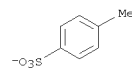
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-methyl-, 4-methylbenzenesulfonate (1:1)
 MF C18 H23 N2 O2 . C7 H7 O3 S
 CI COM

CM 1

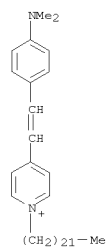


CM 2



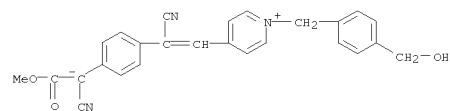
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-[4-(dimethylamino)phenyl]ethenyl]-1-docosyl-, bromide
 (1:1)
 MF C37 H61 N2 . Br
 CI CCM

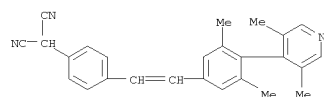


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-1-[4-(hydroxymethyl)phenyl]methyl-, inner salt
 MF C26 H21 N3 O3
 CI CCM



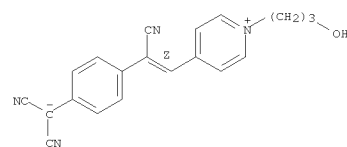
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]phenyl]-
 MF C26 H23 N3
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[(1Z)-2-cyano-2-[4-(dicyanomethyl)phenyl]ethenyl]-1-(3-hydroxypropyl)-, inner salt
 MF C20 H16 N4 O
 CI CCM

Double bond geometry as shown.

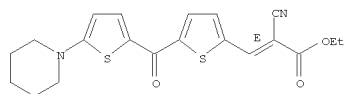


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

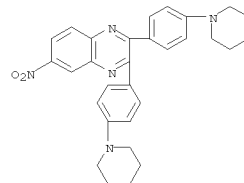
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-cyano-3-[5-[[5-(1-piperidinyl)-2-thienyl]carbonyl]-2-thienyl]-, ethyl ester, (2E)-
MF C20 H20 N2 O3 S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

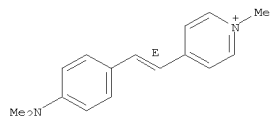
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Quinoxaline, 6-nitro-2,3-bis[4-(1-piperidinyl)phenyl]-
MF C30 H31 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-, iodide (1:1)
MF C16 H19 N2 . I
CI CCM

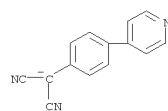
Double bond geometry as shown.



● I⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-(4-pyridinyl)phenyl]-, ion(1-), sodium (1:1)
MF C14 H8 N3 . Na

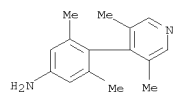


● Na⁺

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

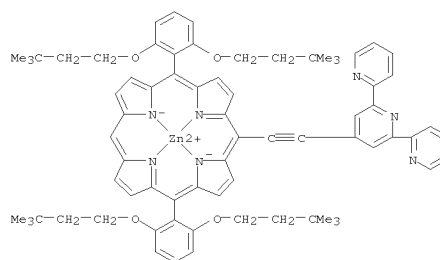
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenamine, 4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethyl-
MF C15 H18 N2



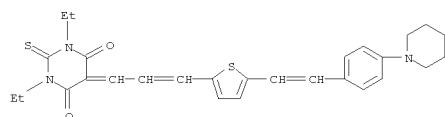
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Zinc, [5,15-bis[2,6-bis(3,3-dimethylbutoxy)phenyl]-10-(2-[2,2':6',2''-terpyridin]-4'-ylethynyl)-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-2)-
MF C73 H77 N7 O4 Zn
CI CCS



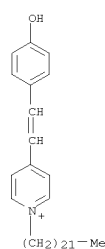
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 4,6-(1H,5H)-Pyrimidinedione, 1,3-diethylidihydro-5-[3-[5-[2-[4-(1-piperidinyl)phenyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-2-thioxo-
MF C28 H31 N3 O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-docosyl-4-[2-(4-hydroxyphenyl)ethenyl]-, bromide (1:1)
MF C35 H56 N O . Br



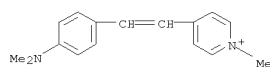
● Br⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

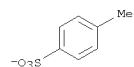
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[[2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
4-methylbenzenesulfonate (1:1)
MF C16 H19 N2 . C7 H7 O3 S

CM 1



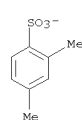
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

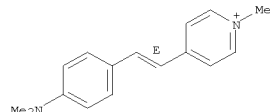
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[[1E]-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2,4-dimethylbenzenesulfonate (1:1)
MF C16 H19 N2 . C8 H9 O3 S

CM 1



CM 2

Double bond geometry as shown.

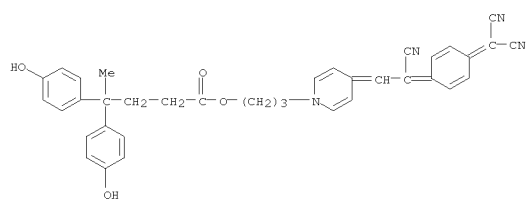


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

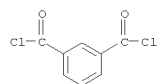
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-[[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with
1,3-benzenedicarbonyl dichloride (9CI)
MF (C37 H32 N4 O4 . C8 H4 Cl2 O2)x
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

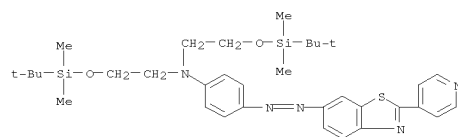


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

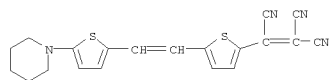
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenamine,
N,N-bis[2-[[[(1,1-dimethylethyl)dimethylsilyloxy]ethyl]-4-[2-
[2-(4-pyridinyl)-6-benzothiazolyl]diazenyl]-
MF C34 H49 N5 O2 S Si2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,1,2-Ethenetricarbonitrile,
2-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-
2-thienyl]-
MF C20 H16 N4 S2

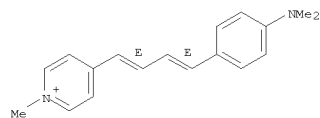


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

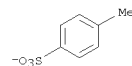
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-methyl-, 4-methylbenzenesulfonate (1:1)
MF C18 H21 N2 . C7 H7 O3 S

CM 1

Double bond geometry as shown.



CM 2

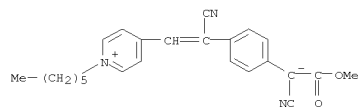


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 4-Pyridinamine, N,N-dimethyl-
MF C7 H10 N2
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-1-hexyl-, inner salt
MF C24 H25 N3 O2

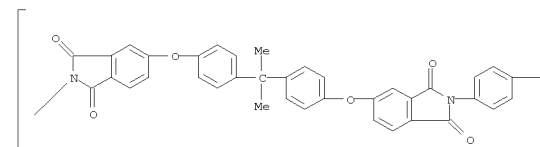


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

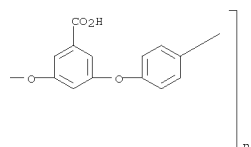
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy(5-carboxy-1,3-phenylene)oxy-1,4-phenylene], 3,5-bis(1,1-dimethylethyl)phenyl ester, ester with 4-[(1Z)-2-cyano-2-[4-(dicyanomethyl)phenyl]ethenyl]-1-(3-hydroxypropyl)pyridinium inner salt (9CI)
 MF (C50 H32 N2 O10)n . x C20 H16 N4 O . x C14 H22 O
 CM 1

PAGE 1-A



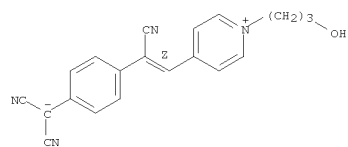
PAGE 1-B



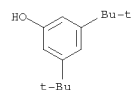
CM 2

Double bond geometry as shown.

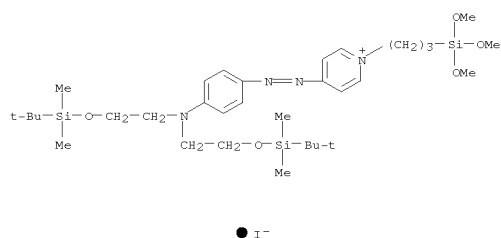
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



CM 3



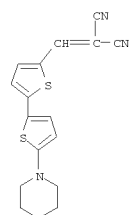
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]diazanyl]-1-[3-(trimethoxysilyl)propyl]-, iodide (1:1)
 MF C33 H61 N4 O5 Si3 . I



• I⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

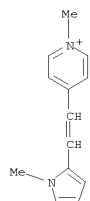
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]methylene]-
 MF C17 H15 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 1-methyl-4-[2-(1-methyl-1H-pyrrol-2-yl)ethenyl]-
 MF C13 H15 N2
 CI CCM

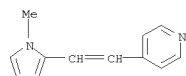


L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 4-Pyridinecarboxylic acid
 MF C6 H5 N O2
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

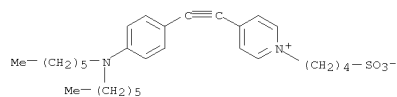
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridine, 4-[2-(1-methyl-1H-pyrrol-2-yl)ethenyl]-,
 mono[tetrafluoroborate(1-)] (9CI)
 MF C12 H12 N2 . B F4 . H
 CM 1



CM 2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-[4-(dihexylamino)phenyl]ethynyl]-1-(4-sulfobutyl)-,
 inner
 salt
 MF C29 H42 N2 O3 S

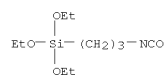


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

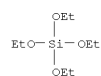
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Pyridinium, 4-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-methyl-,
 salt with 4-methylbenzenesulfonic acid (1:1), polymer with silicic acid
 (H4SiO4) tetraethyl ester and triethoxy(3-isocyanatopropyl)silane (9CI)
 MF (C18 H23 N2 O2 . C10 H21 N O4 Si . C8 H20 O4 Si . C7 H7 O3 S)x
 CI PMS

CM 1

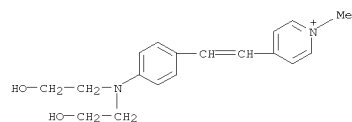


CM 2

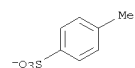


CM 3

CM 4

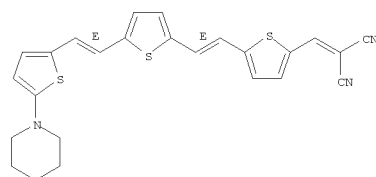


CM 5



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, [[5-[2-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-
 thienyl]ethenyl]-2-thienyl]methylene]-, (E,E)- (9CI)
 MF C25 H21 N3 S3

Double bond geometry as shown.



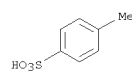
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

CM 1



CM 2

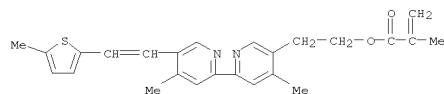


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

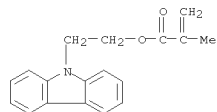
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-(9H-carbazol-9-yl)ethyl ester, polymer
with 2-[4,4'-dimethyl-5-[2-(5-methyl-2-thienyl)ethenyl][2,2'-bipyridin]-5-
yl]ethyl 2-methyl-2-propenoate
MF (C25 H26 N2 O2 S . C18 H17 N O2)x
CI PMS

CM 1

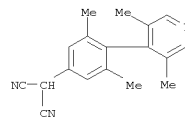


CM 2



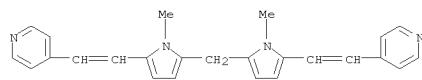
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
MF C18 H17 N3



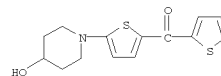
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridine, 4,4'-[methylenebis[(1-methyl-1H-pyrrole-5,2-diyl)-2,1-
ethenediyl]]bis- (9CI)
MF C25 H24 N4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

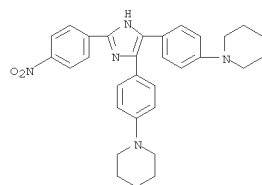
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Methanone, [5-(4-hydroxy-1-piperidinyl)-2-thienyl]-2-thienyl-
MF C14 H15 N O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

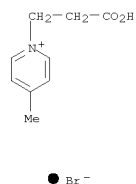
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Piperidine, 1,1'-[[2-(4-nitrophenyl)-1H-imidazole-4,5-diyl]di-4,1-phenylene]bis- (9CI)
MF C31 H33 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(2-carboxyethyl)-4-methyl-, bromide (1:1)
MF C9 H12 N O2 . Br

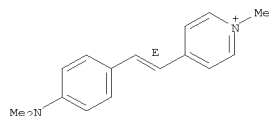


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

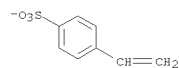
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-, 4-ethenylbenzenesulfonate (1:1)
MF C16 H19 N2 . C8 H7 O3 S

CM 1

Double bond geometry as shown.

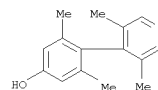


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethyl-
MF C15 H17 N O

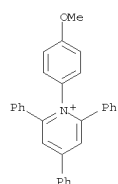


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-(4-methoxyphenyl)-2,4,6-triphenyl-, tetrafluoroborate(1-)
(1:1)
MF C30 H24 N O . B F4

CM 1

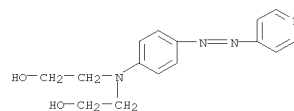


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Ethanol, 2,2'-[[4-[2-(4-pyridinyl)diazeno]phenyl]imino]bis-
MF C15 H18 N4 O2

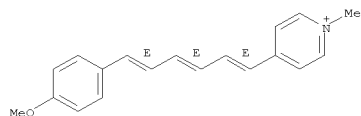


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

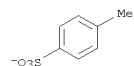
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[6-(4-methoxyphenyl)-1,3,5-hexatrienyl]-1-methyl-,
(E,E,E)-, salt with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C19 H20 N O . C7 H7 O3 S

CM 1

Double bond geometry as shown.



CM 2



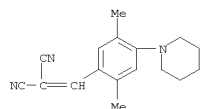
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 4-Piperidinol
MF C5 H11 N O
CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

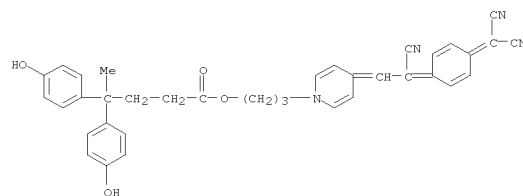
10560670.trn

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[2,5-dimethyl-4-(1-piperidinyl)phenyl]methylene]-
MF C17 H19 N3



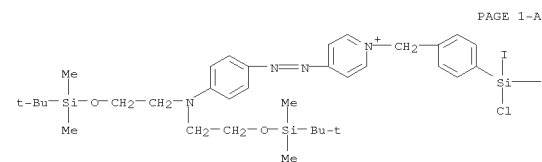
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester
MF C37 H32 N4 O4
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 4-[2-[4-[bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]diazenyl]-1-[[4-(dichloriodosilyl)phenyl]methyl]-, iodide (1:1)
MF C34 H52 Cl2 I N4 O2 Si3 . I



PAGE 1-A

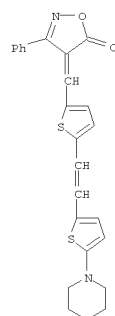
• I⁻

PAGE 1-B

—Cl

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 5(4H)-Isoxazolone, 3-phenyl-4-[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]-
MF C25 H22 N2 O2 S2



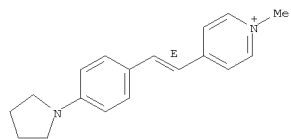
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

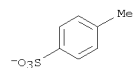
L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Pyridinium, 1-methyl-4-[2-[4-(1-pyrrolidinyl)phenyl]ethenyl]-, (E)-, salt
with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C18 H21 N2 . C7 H7 O3 S

CM 1

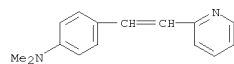
Double bond geometry as shown.



CM 2



L21 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenamine, N,N-dimethyl-4-[2-(2-pyridinyl)ethenyl]-
MF C15 H16 N2
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

```
=> s  l21 and Propanedinitrile
      40891 PROPANEDINITRILE
L22      21 L21 AND PROPANEDINITRILE
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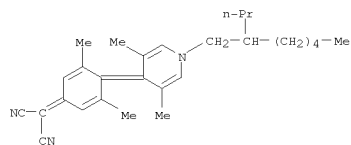
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=> s  l21 and dicyanomethylene
      5559 DICYANOMETHYLENE
L23      5 L21 AND DICYANOMETHYLENE
```

```
=> s  l22 or l23
L24      25 L22 OR L23
```

```
=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'
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10560670.trn

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-
pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
MF C28 H37 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN
SAM - Index Name, MF, and structure - no RN
FIDE - All substance data, except sequence data
IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN
EPROP - Table of experimental properties
PPROP - Table of predicted properties
PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- PI, SO
STD -- BIB, IPC, and NCL

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

IABS -- ABS, indented, with text labels
IBIB -- BIB, indented, with text labels
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.
The MAX format is the same as ALL plus SPEC.
The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

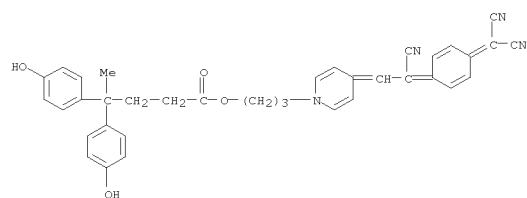
HELP DFIELDS -- To see a complete list of individual display fields.
HELP FORMATS -- To see detailed descriptions of the predefined formats.
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

10560670.trn

=> d scan

10560670.trn

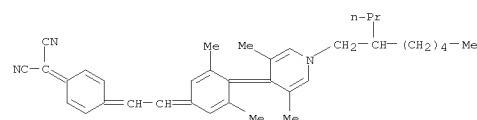
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester
 MF C37 H32 N4 O4
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

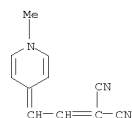
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):11

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-2,5-cyclohexadien-1-ylidene]-
 MF C36 H43 N3



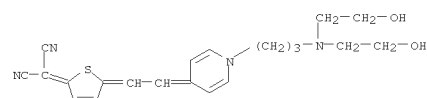
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-
 MF C11 H9 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

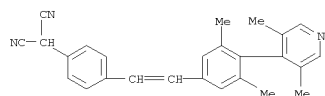
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]-
 MF C21 H24 N4 O2 S
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

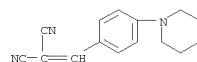
10560670.trn

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]phenyl]-
MF C26 H23 N3
CI



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[4-(1-piperidinyl)phenyl]methylene]-
MF C15 H15 N3
CI CCM

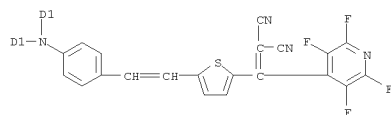


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

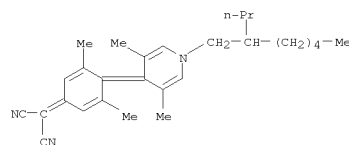
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [[5-[2-[4-[bis(butylphenyl)amino]phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (9CI)
MF C41 H34 F4 N4 S
CI IDS



2 (D1-Bu-n)



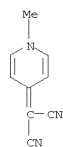
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
MF C28 H37 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

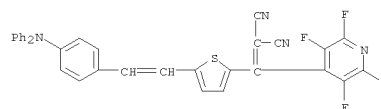
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L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-(1-methyl-4(1H)-pyridinylidene)-
MF C9 H7 N3



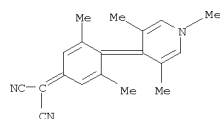
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[5-[2-[4-(diphenylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
MF C33 H18 F4 N4 S



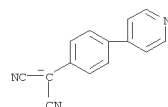
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-2,5-cyclohexadien-1-ylidene]-
MF C19 H19 N3
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-(4-pyridinyl)phenyl]-, ion(1-), sodium (1:1)
MF C14 H8 N3 . Na



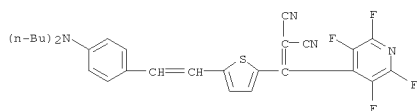
● Na⁺

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HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):11

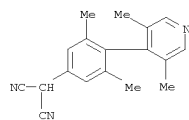
10560670.trn

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5-[2-[4-(dibutylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
 MF C29 H26 F4 N4 S



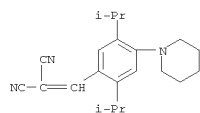
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
 MF C18 H17 N3



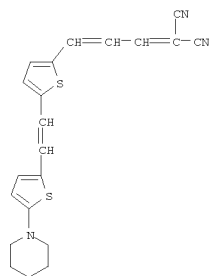
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[2,5-bis(1-methylethyl)-4-(1-piperidinyl)phenyl]methylene]-
 MF C21 H27 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-
 MF C21 H19 N3 S2

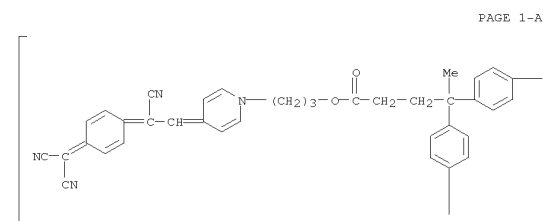


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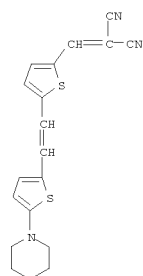
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Poly[oxy carbonyl-1,3-phenylenecarbonyloxy-1,4-phenylene[4-[3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propoxy]-1-methyl-4-oxobutylidene]-1,4-phenylene] (9CI)
 MF (C45 H34 N4 O6)n
 CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK



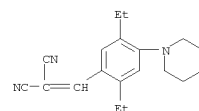
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]-
 MF C19 H17 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[2,5-diethyl-4-(1-piperidinyl)phenyl]methylene]-
 MF C19 H23 N3

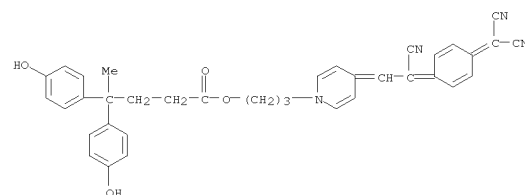


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

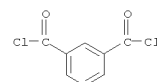
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with 1,3-benzenedicarbonyl dichloride (9CI)
 MF (C37 H32 N4 O4 . C8 H4 Cl2 O2)x
 CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1



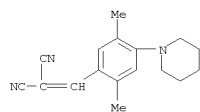
CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

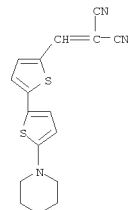
10560670.trn

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[2,5-dimethyl-4-(1-piperidinyl)phenyl]methylene]-
MF C17 H19 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

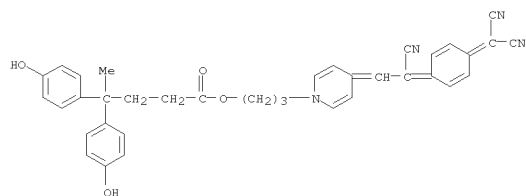
L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]methylene]-
MF C17 H15 N3 S2



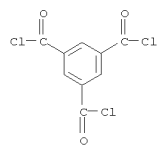
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with 1,3,5-benzenetricarbonyl trichloride (9CI)
MF (C37 H32 N4 O4 . C9 H3 Cl3 O3)x
CI PMS

CM 1

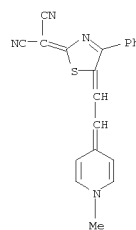


CM 2



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):11

L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[5-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-4-phenyl-2(5H)-thiazolylidene]-
MF C20 H14 N4 S

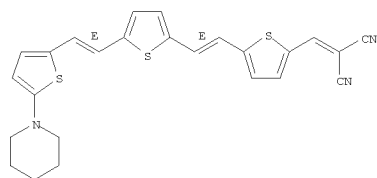


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L24 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [[5-[2-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-
2-thienyl]ethenyl]-2-thienyl]methylene]-, (E,E)- (9CI)
MF C25 H21 N3 S3

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

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=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23

=> s l24 not l3

L25 25 L24 NOT L3

=> file caplus

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 125
L26 99 L25

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
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<http://www.cas.org/legal/infopolicy.html>

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

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FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

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L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010
L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010
L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

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L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

=> analyze l25
ENTER ANSWER NUMBER OR RANGE (1-):1-
ENTER DISPLAY CODE (CHEM) OR ?:end

=> help sfields

The searchable fields in the REGISTRY File for general terms, nomenclature-based terms, terms derived from molecular formulas, and property data terms are listed below. If you do not specify a field, your term will be searched in the Basic Index, which contains all name segments, collective index codes, and molecular formula fragments.

CAS Registry Numbers may also be entered without a field code. The system will automatically append /RN to the Registry Numbers before searching them. Registry Numbers containing truncation or character masking must be searched in the /RN field.

Both left and right truncation (SLART) may be used in the /CNS, /NTE, and /ENTE search fields in the REGISTRY File. A term with left truncation must contain at least four characters, for example, S ?CYAN?/CNS. A term with left truncation will retrieve only terms that have at least one alphabetic character, for example, S ?1040/CNS will retrieve C1040/CNS but not 21040/CNS or 1040/CNS.

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Numeric fields may be searched as single point values, ranges, or with numeric operators, e.g., 12/S, 200-250/FW, NC >= 3.

Material Composition (MAC) may be searched with both text terms for components and numeric terms for composition. For further information, enter HELP MAC at an arrow prompt (=>).

FIELD NAME	FIELD QUALIFIER
Basic Index	/BI (or none)
CAS Registry Number Locator	/LC
CAS Registry Number	/RN
Class Identifier	/CI
Component Registry Number	/CRN
Definition	/DEF
Editor Note	/ENTE
Entry Date	/ED (numeric)
Field Availability	/FA
File Segment	/FS
Number of References in the CA File	/REF.CA (numeric)
Number of References in the CA File for non-specific derivatives	/REF.CAD (numeric)
Number of References in the CAplus File	/REF.CAPLUS (numeric)
Polymer Class Term	/PCT
Polymer Class Term Count	/PCT.CNT (numeric)
Source of Registration	/SR
Update Date	/UP (numeric)
Nomenclature Fields	

Chemical Name	/CN
Chemical Name Segment	/CNS
Heading Parent	/HP
Index Name Segment - Heading Parent	/INS.HP
Index Name Segment - Non-Heading Parent	/INS.NHP
Other Name Segment	/ONS
Molecular Formula Fields	

Atom Count	/ATC (numeric)
Element Count	/ELC (numeric)
Element Count for Substance	/ELC.SUB (numeric)
Element Formula	/ELF
Element Ratio, xx (xx = CH, CN, CO, HC, HN, HO, NC, NH, NO, OC, OH, ON)	/ELR.xx (numeric)
Element Symbol	/ELS
Element Symbol for Multicomponent Formula	/ELS.MCF
Formula Weight	/FW (numeric)
Material Composition	/MAC (mixed)
Molecular Formula	/MF
Number of Components	/NC (numeric)

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Periodic Group	/PG
Relative Composition	/RC
Specific Element Counts	/CU, /NI, etc.(numeric)

The Element Formula (ELF) field requires spaces between the elements in the formula, e.g., => S C H N O/ELF. The Molecular Formula (MF) field may be entered with or without spaces. Formula fragments searched in the Basic Index must be entered without spaces.

CAplus Document Type and Super Roles Search Fields	Search Field
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Document type	/DT.CA
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Super roles for specific substances	/RL
Super roles for non-specific derivatives	/RLD

Super roles for specific substances and non-specific derivatives	/RLS
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Super roles for specific substances from patents	/RL.P
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Super roles for non-specific derivatives from patents	/RLD.P
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Super roles for specific substances and non-specific derivatives from patents	/RLS.P
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Super roles for specific substances from non-patent documents	/RL.NP
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Super roles for non-specific derivatives from non-patent documents	/RLD.NP
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Super roles for specific substances and non-specific derivatives from non-patent documents	/RLS.NP
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REGISTRY contains property data and related information in the following search fields. Unless indicated otherwise in footnote (1), property search fields may be searched using numeric operators or ranges.

Field Name	Search Field	Default Unit
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Bioconcentration Factor pH	/BCF.PH	none
Bioconcentration Factor Temp.	/BCF.T	deg C
Boiling Point	/BP	deg C
Boiling Point Pressure	/BP.P	Torr
Density	/DEN	g/cm**3
Density Pressure	/DEN.P	Torr
Density Temperature	/DEN.T	deg C
Electric Conductance	/ECON	Siemens
Electric Conductance Temperature	/ECON.T	deg C
Electric Conductivity	/ECND	S/cm
Electric Conductivity Temperature	/ECND.T	deg C

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Electric Resistance	/ERES	ohm
Electric Resistance Temperature	/ERES.T	deg C
Electric Resistivity	/EREST	ohm*cm
Electric Resistivity Temperature	/EREST.T	deg C
Enthalpy of Vaporization	/HVAP	kJ/mol
Enthalpy of Vaporization Pressure	/HVAP.P	Torr
Experimental Properties (1)	/EPROPS	none
Experimental Property Tags (2)	/ETAG	none
Flash Point	/FP	deg C
Freely Rotatable Bonds	/FRB	none
Glass Transition Temperature	/TG	deg C
Hydrogen Acceptors	/HAC	none
Hydrogen Donors	/HD	none
Hydrogen Donor/Acceptor Sum	/HDAS	none
Koc (Organic Carbon Adsorption Coeff.	/KOC	none
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LogD	/LOGD	none
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Magnetic Moment Temperature	/MM.T	K
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Median Lethal Dose Route of Administration	/LD50.RTE	none
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Melting Point Pressure	/MP.P	Torr
Melting Point Solvent	/MP.SOL	none
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Molar Solubility	/SLB.MOL	mol/L
Molar Solubility pH	/SLB.PH	mol/L
Molar Volume	/MVOL	cm**3/mol
Molar Volume Temperature	/MVOL.T	deg C
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Molecular Weight	/MW	none
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Optical Rotatory Power Concentration	/ORP.C	g/100mL
Optical Rotatory Power Temperature	/ORP.T	deg C
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Optical Rotatory Power Solvent	/ORP.SOL	none
Optical Rotatory Power Wavelength	/ORP.W	nm
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pKa Temperature	/PKA.T	deg C
pKa Type	/PKA.TYP	none
Polar Surface Area	/PSA	A**2
		ngstrom**2)
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Property Source (1)	/PSO	none
Property Type (1)	/PTYP	none
Reference Accession Number in CA (1)	/RAN.CA	none

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Refractive Index Temperature	/RI.T	deg C
Refractive Index Wavelength	/RI.W	nm
Spectra (1)	/SPEC	none
Tensile Strength	/TS	MPa
Tensile Strength Temperature	/TS.T	deg C
Uncertainty Range	/UR	none
Vapor Pressure	/VP	Torr
Vapor Pressure Temperature	/VP.T	deg C

- (1) Field containing text terms which are not searchable with numeric operators or ranges.
- (2) For a list of the tagged properties, refer to REGISTRY: Tagged Experimental Properties at:

www.cas.org/support/stngen/stdoc/properties.html

For information on the sources and definitions of properties, refer to Property Searching in REGISTRY:

www.cas.org/support/stngen/stdoc/properties.html

Enter HELP ROLES at an arrow prompt in the file for a list of CAPLUS super roles that are searchable in REGISTRY.

Additional information on search or display fields is available in the following messages:

HELP SRINGS - list of ring data search fields
HELP SSQ - list of sequence search fields
HELP DFIELDS - list of display field codes

```
=> s 125 and 5<=ref.caplus
      1484320 5<=REF.CAPLUS
L27                6 L25 AND 5<=REF.CAPLUS
```

```
=> s 125 not 127
L28                19 L25 NOT L27
```

```
=> file caplus
FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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```

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

CAPLUS now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 127
L29 90 L27

=> s 128
L30 13 L28

=> file reg
FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

10560670.trn

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

L4 FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
 11 S L3

 FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

 FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

 FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L6 172 SEA L5
L7 1 S L3 NOT L6

 FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010
L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

 FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
L18 269403 S C6N/RF

 FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010
L19 TRA L17 1- RN : 3023 TERMS

 FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010
L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

 FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010
L26 99 S L25

 FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

 FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010
L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

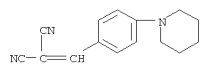
10560670.trn

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

=> d scan 127

10560670.trn

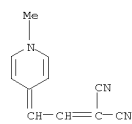
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[4-(1-piperidinyl)phenyl]methylene]-
MF C15 H15 N3
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

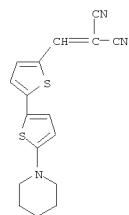
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-
MF C11 H9 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

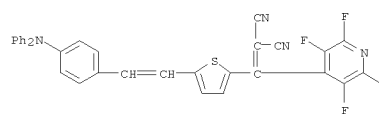
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]methylene]-
MF C17 H15 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[[5-[2-[4-(diphenylamino)phenyl]ethenyl]-2-thienyl][2,3,5,6-tetrafluoro-4-pyridinyl]methylene]-
MF C33 H18 F4 N4 S

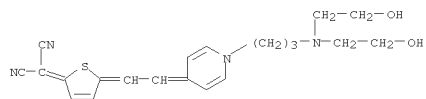


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

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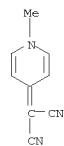
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-
4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]-
MF C21 H24 N4 O2 S
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-(1-methyl-4(1H)-pyridinylidene)-
MF C9 H7 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> s 127 and hydroxyethyl

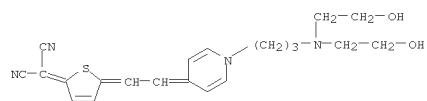
431333 HYDROXYETHYL

L31 1 L27 AND HYDROXYETHYL

=> d scan

10560670.trn

L31 1 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-
4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]-
MF C21 H24 N4 O2 S
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

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FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

=> file caplus
FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l31
L32 6 L31

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010
L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
L4 11 S L3

10560670.trn

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

L13 0 S ELECTROPTIC CHROMOPHORES

L14 27 S ELECTROOPTIC CHROMOPHORES

L15 11072 S ELECTROOPTIC

L16 660 S L15 AND CHROMOPHORE

L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19

L21 214 S L20 AND C5N/RF

L22 21 S L21 AND PROPANEDINITRILE

L23 5 S L21 AND DICYANOMETHYLENE

L24 25 S L22 OR L23

L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS

L28 19 S L25 NOT L27

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010

L29 90 S L27

L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010

L32 6 S L31

=> s 132 or 130

10560670.trn

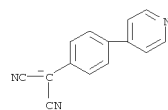
L33 19 L32 OR L30

=> d cbib abs hitstr 1-

YOU HAVE REQUESTED DATA FROM 19 ANSWERS - CONTINUE? Y/(N):y

L33 ANSWER 1 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2008;607268 Document No. 149:319620 Twisted π -Electron System
 Electrooptic Chromophores. Structural and Electronic Consequences of
 Relaxing Twist-Inducing Nonbonded Repulsions. Wang, Yiliang;
 Frattarelli,
 David L.; Facchetti, Antonio; Cariati, Elena; Tordin, Elisa; Ugo, Renato;
 Zuccaccia, Cristiano; Macchioni, Alceo; Wegener, Staci L.; Stern,
 Charlotte L.; Ratner, Mark A.; Marks, Tobin J. (Department of Chemistry
 and the Materials Research Center, Northwestern University, Evanston, IL,
 60208-3113, USA). Journal of Physical Chemistry C, 112(21), 8005-8015
 (English) 2008. CODEN: JPCCCK. ISSN: 1932-7447. OTHER SOURCES:
 CASREACT
 149:31962. Publisher: American Chemical Society.
 AB The synthesis, structural and spectroscopic characterization, and
 nonlinear optical response properties of a "slightly" twisted
 zwitterionic
 4-quinopyran electrooptic chromophore FMC,
 2-(4-[1-(2-propylheptyl)-1H-pyridine-4-ylidene]cyclohexa-2,5-
 dienyldiene)malononitrile, are reported. X-ray diffraction data and d.
 functional theory (DFT) minimized geometries confirm that deletion of the
 four o-, o'-, o''-, and o'''-Me groups in the parent chromophore TMC-2,
 2-(4-[3,5-dimethyl-1-(2-propylheptyl)-1H-pyridin-4-ylidene]-3,5-
 dimethylcyclohexa-2,5-dienyldiene)malononitrile, relaxes the arene-arene
 twist angle from 89.6 to 9.0°. These geometrical changes result in a
 significantly increased contribution of the quinoidal structure to the
 mol. ground state of FMC (vs. TMC-2), reduced solvatochromic shifts in
 the
 optical spectra, and a diminished elec.-field-induced second-harmonic
 (EFISH) generation derived mol. hyperpolarizability ($\mu\beta$ = -2340
 + 10-48 esu of DFMC, the dendrimer derivative of FMC, vs -24000 +
 10-48 esu of TMC-2) in CH2Cl2 at 1907 nm. Pulsed field gradient
 spin-echo
 (PGSE) NMR spectroscopy and EFISH indicate that the levels of FMC
 aggregation in solution are comparable to those of TMC-2 (monomers and
 dimers) in CH2Cl2 solution B3LYP and INDO/S computation of chromophore
 mol.
 structure, aggregation, and hyperpolarizability trends are in good
 agreement with experiment
 IT 1031421-49-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (synthesis, structural and spectroscopic characterization, and
 nonlinear optical response properties of "slightly" twisted
 zwitterionic 4-quinopyran electrooptic chromophore)
 RN 1031421-49-4 CAPLUS
 CN Propanedinitrile, 2-[4-(4-pyridinyl)phenyl]-, ion(1-), sodium (1:1) (CA
 INDEX NAME)

L33 ANSWER 1 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

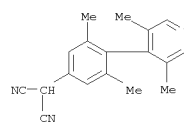


● Na⁺

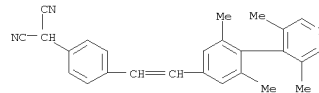
L33 ANSWER 2 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2007;196777 Document No. 146:4234930 Ultralarge hyperpolarizability twisted
 π -electron system electro-optic chromophores: Synthesis, solid-state
 and solution-phase structural characteristics, electronic structures,
 linear and nonlinear optical properties, and computational studies.
 Kang,
 Hu; Facchetti, Antonio; Jiang, Hua; Cariati, Elena; Righetto, Stefania;
 Ugo, Renato; Zuccaccia, Cristiano; Macchioni, Alceo; Stern, Charlotte L.;
 Liu, Zhifu; Ho, Seng-Tiong; Brown, Eric C.; Ratner, Mark A.; Marks, Tobin
 J. (Department of Chemistry and the Materials Research Center and
 Department of Electrical and Computer Engineering, Northwestern
 University, Evanston, IL, 60208-3113, USA). Journal of the American
 Chemical Society, 129(11), 3267-3286 (English) 2007. CODEN: JACSAT.
 ISSN: 0002-7863. OTHER SOURCES: CASREACT 146:423493. Publisher:
 American
 Chemical Society.
 AB This contribution details the synthesis and chemical/phys.
 characterization
 of a series of 5 unconventional twisted π -electron system electro-optic
 (EO) chromophores. Crystallog. anal. of these twisted intramol.
 charge-transfer chromophores reveals large ring-ring dihedral twist
 angles
 (80-89°) and a highly charge-separated zwitterionic structure
 dominating the ground state. NCE NMR measurements of the twist angle in
 solution confirm that the solid-state twisting persists essentially
 unchanged
 in solution Optical, IR, and NMR spectroscopic studies in both the
 solution
 phase and solid state further substantiate that the solid-state
 structural
 characteristics persist in solution The aggregation of these highly
 polar
 pyridinium zwitterions is investigated using several exptl. techniques,
 including concentration-dependent optical and fluorescence spectroscopy
 and
 pulsed field gradient spin-echo NMR spectroscopy in combination with
 solid-state data. These studies reveal clear evidence of the formation
 of
 centrosym. aggregates in concentrated solns. and in the solid state and
 provide
 quant. information on the extent of aggregation. Solution-phase DC
 elec.-field-induced second-harmonic generation (EFISH) measurements
 reveal
 unprecedented hyperpolarizabilities (nonresonant $\mu\beta$ as high as
 -488 000 + 10-48 esu at 1907 nm). Incorporation of these
 chromophores into guest-host poled polyvinylphenol films provides very
 large EO coeffs. ($\chi^{(3)}$) of .apprx.330 pm/V at 1310 nm. The aggregation
 and
 structure-property effects on the observed linear/nonlinear optical
 properties are discussed. High-level computations based on
 state-averaged
 complete active space SCF methods provide a new rationale for these
 exceptional hyperpolarizabilities and demonstrate significant solvation
 effects on hyperpolarizabilities, in good agreement with experiment As
 such,
 this work suggests new paradigms for mol. hyperpolarizabilities and
 electro-optics.
 IT 866416-39-9P 866416-43-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)

L33 ANSWER 2 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 (intermediate; prepn., hyperpolarizability and spectra of twisted
 pyridinium-based chromophores)

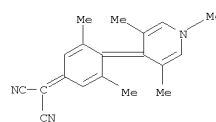
RN 866416-39-9 CAPLUS
 CN Propanedinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
 (CA INDEX NAME)



RN 866416-43-5 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-
 dimethylphenyl]ethenyl]phenyl]- (CA INDEX NAME)



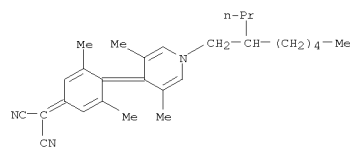
IT 866416-40-2P 866416-41-3P
 RL: PRE (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (orange chromophore; preparation, hyperpolarizability and spectra of
 twisted
 pyridinium-based chromophores)
 RN 866416-40-2 CAPLUS
 CN Propanedinitrile,
 2-[3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-
 2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)



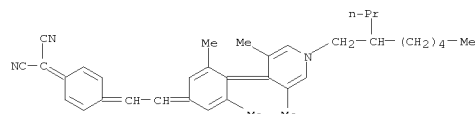
RN 866416-41-3 CAPLUS
 CN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-
 pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]- (CA INDEX
 NAME)

10560670.trn

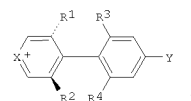
L33 ANSWER 2 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



IT 866416-44-6P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (purple chromophore; preparation, hyperpolarizability and spectra of twisted pyridinium-based chromophores)
 RN 866416-44-6 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)

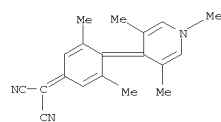


L33 ANSWER 3 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:1005693 Document No. 145:3860080 Twisted π -electron system chromophore compounds with very large molecular hyperpolarizabilities and related compositions and devices. Marks, Tobin J.; Kang, Hu (Northwestern University, USA). PCT Int. Appl. WO 2006/02620 A2 20060928, 78 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2006-US10902 20060324. PRIORITY: US 2005-665038P 20050324. GI

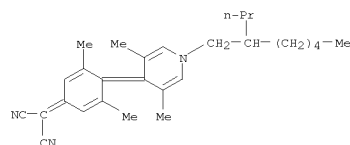


AB A chromophore compound of a formula (I) wherein X is selected from NR', O, and S; each of R' and R1-R4 is independently selected from linear alkyl, substituted linear alkyl, branched alkyl, substituted branched alkyl, cycloalkyl and substituted cycloalkyl moieties; and Y comprises a substituent comprising a moiety selected from anionic carbon and heteroatom moieties, and salts, conjugate acids and charge-transfer isomers thereof. These unconventional twisted π -electron system electro-optic chromophores were used in electro-optical devices. Crystallog. anal. of several of these chromophores reveals large ring-ring dihedral twist angles and a highly charge-separated zwitterionic structure in the ground state, in both solution phase and solid-state.
 IT 866416-40-2P 866416-41-3P 866416-44-6P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (twisted π -electron system chromophore compds. with very large mol. hyperpolarizabilities for use in electrooptical devices)
 RN 866416-40-2 CAPLUS
 CN Propanedinitrile, 2-[3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)

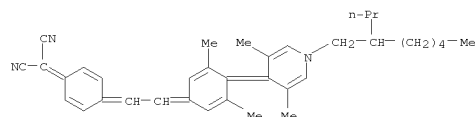
L33 ANSWER 3 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 866416-41-3 CAPLUS
 CN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)

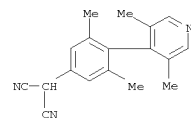


RN 866416-44-6 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)

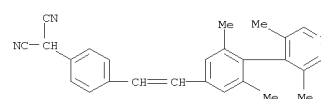


IT 866416-39-9P 866416-43-5P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (twisted π -electron system chromophore compds. with very large mol. hyperpolarizabilities for use in electrooptical devices)
 RN 866416-39-9 CAPLUS
 CN Propanedinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]- (CA INDEX NAME)

L33 ANSWER 3 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 866416-43-5 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]phenyl]- (CA INDEX NAME)



10560670.trn

L33 ANSWER 4 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:854700 Document No. 145:512874 Effects of alkyl substituents of
 photorefractive chromophores on electro-optic response. Choi, Chil-Sung;
 Nguyen, Quoc Vuong; Oh, Jin-Woo; Hwang, Ui-Jung; Kim, Nakjoong (Center

for Organic Photorefractive Materials Department of Chemistry, Hanyang
 University, S. Korea). Polymer Preprints (American Chemical Society,
 Division of Polymer Chemistry), 47(2), 994-995 (English) 2006. CODEN:
 ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division
 of Polymer Chemistry.

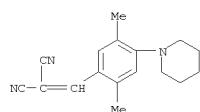
AB 4-Piperidinobenzylidene-malononitrile derivs. with various alkyl
 substituents, such as Me, Et and iso-Pr were synthesized. The effect of
 alkyl groups attached to chromophore on electro optical properties and
 response time was studied. As the temperature of the sample was raised,

the electro-optic response speeded up. Also, bulky alkyl substituents in
 chromophore provide some free volume to facilitate the rotational
 mobility,

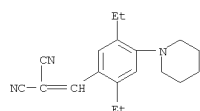
i.e., EO response. The results indicate that the EO response strongly
 depends on temperature and shape of chromophores.

IT 915021-99-7 915022-00-3 915022-01-4
 RL: DEV (Device component use); MOA (Modifier or additive use); PRP
 (Properties); USES (Uses)
 (dopant; effects of alkyl substituents of photorefractive chromophores
 on electro-optic response)

RN 915021-99-7 CAPLUS
 CN Propanedinitrile, 2-[[2,5-dimethyl-4-(1-piperidinyl)phenyl]methylene]-
 (CA INDEX NAME)



RN 915022-00-3 CAPLUS
 CN Propanedinitrile, 2-[[2,5-diethyl-4-(1-piperidinyl)phenyl]methylene]-
 (CA INDEX NAME)



L33 ANSWER 5 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:610326 Document No. 145:250751 Effect of conjugation path length on
 quadratic nonlinear optical properties of monomer and aggregates of
 zwitterionic merocyanine dyes. Ray, Paresk C.; Bonifassi, P.;
 Leszczynski, J. (Department of Chemistry, Jackson State University,
 Jackson, MS, 39217, USA). Journal of Physical Chemistry A, 110(28),
 8963-8969 (English) 2006. CODEN: JPACFH. ISSN: 1089-5639. Publisher:
 American Chemical Society.

AB We present a quantum-chemical anal. of the conjugation path length
 effect on first hyperpolarizabilities of a series of 3 zwitterionic merocyanine
 dyes

whose synthesis has been reported earlier. The effect of the conjugation
 path lengths is evaluated to demonstrate the engineering guidelines for
 enhancing mol. optical nonlinearity. The first hyperpolarizabilities are
 calculated for extended conjugated monomer and H and J type aggregates of
 merocyanine dyes, to provide insight into the intermol. interactions and
 the relationship between structural and collective nonlinear optical
 properties. The mol. geometries for monomers are obtained via
 B3LYP/6-31G(d,p) level optimization including the SCRF/PCM approach, and
 the dynamic nonlinear optical (NLO) properties for monomer and aggregates
 are calculated with the ZINDO/CV method, including solvent effects. It

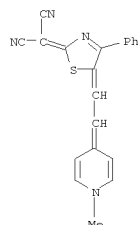
is found that the chain length dependence of the first nonlinearity peaks at
 n = 6 and then it starts changing slowly for monomer and aggregates of
 zwitterionic merocyanine dyes. It is concluded that an excellent NLO
 response in solution might vanish when the active chromophore forms
 higher H

aggregates. The importance of our results on the design of electrooptic
 materials has been discussed.

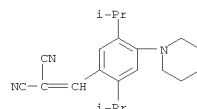
IT 905990-23-0
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)

(dye; effect of conjugation path length on NLO properties of monomer
 and aggregates of zwitterionic merocyanine dyes)

RN 905990-23-0 CAPLUS
 CN Propanedinitrile, 2-[5-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-4-
 phenyl-2(5H)-thiazolylidene]- (CA INDEX NAME)



L33 ANSWER 4 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 RN 915022-01-4 CAPLUS
 CN Propanedinitrile, 2-[[2,5-bis(1-methylethyl)-4-(1-
 piperidinyl)phenyl]methylene]- (CA INDEX NAME)



L33 ANSWER 6 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:532360 Document No. 145:220599 Electro-optics poled sol-gel materials
 doped with heterocycle push-pull chromophores. Della Giustina, Gioia;
 Brusatin, Giovanna; Guglielmi, Massimo; Dispenza, Massimiliano; Fiorello,
 Anna Maria; Varasi, Mauro; Casalbani, Mauro; Quatela, Alessia; De
 Matteis,

Fabio; Giorgetti, Emilia; Margheri, Giancarlo; Innocenzi, Plinio;
 Abboto,

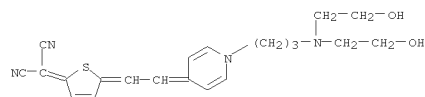
Alessandro; Beverina, Luca; Pagani, Giorgio A. (Dipartimento di
 Ingegneria Meccanica, Settore Materiali and INS, Padua, 35131, Italy). Materials
 Science & Engineering, C: Biomimetic and Supramolecular Systems, 26(5-7),
 979-982 (English) 2006. CODEN: MSCEEE. ISSN: 0928-4931. Publisher:
 Elsevier B.V.

AB Hybrid organic-inorg. materials doped with zwitterionic push-pull
 chromophores with high hyperpolarizability were synthesized via sol-gel,
 based on glycidoxypolytrimethoxysilane (GPTMS) and
 glycidoxypolydimethoxysilane (GDMMS). Homogeneous films doped
 with chromophores, were obtained using N-hydroxyethylcarbazole as a phys.
 spacer avoiding dye aggregation. The waveguiding properties of the
 spin-coated doped films elec. poled in N2 atmosphere showing 2nd harmonic
 generation measurements, were preliminarily measured by m-line
 spectroscopy before and after poling; the feasibility of channel
 waveguiding structures was demonstrated.

IT 468721-53-1
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(electrooptic poled sol-gel materials doped with)

RN 468721-53-1 CAPLUS
 CN Propanedinitrile, 2-[5-[2-[1-[3-bis(2-hydroxyethyl)amino]propyl]-4(1H)-
 pyridinylidene]ethylidene]-2(5H)-thienylidene]- (CA INDEX NAME)



L33 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2005:1007743 Document No. 143:3758400 Synthesis and unprecedented electro-optic response properties of twisted π -system chromophores. Kang, Hu; Facchetti, Antonio; Jiang, Hua; Zhu, Peiwang; Marks, Tobin J. (Department of Chemistry and the Materials Research Center, Northwestern University, Evanston, IL, 60208-3113, USA). Materials Research Society Symposium Proceedings, 866(Rare-Earth Doping for Optoelectronic Applications), 131-136 (English) 2005. CODEN: MRSPPDH. ISSN: 0272-9172. OTHER SOURCES: CASREACT 143:375840. Publisher: Materials Research Society.

AB Symposium proceedings. A series of unconventional twisted intramol. charge-transfer (TICT) chromophores was designed and synthesized. These chromophores exhibit ultra-large first hyperpolarizabilities. The structural characteristic that promotes this unusual nonlinear optical response is a stereochem. enforced reduction of the D- π -A conjugation

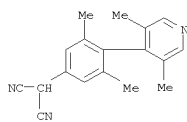
that enforces zwitterionic behavior in the ground state and provides a low-energy, large-oscillator strength intramol. excitation feature. The consequence is that mols. with relatively small nos. of π -electrons exhibit responses far larger than those of traditional planar π -conjugated chromophores. At 1907 nm, non-resonant $\mu\beta$ values as high as $-466,000 + 10^{-48}$ esu are observed

IT 866416-39-9P 866416-43-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(quaternization/deprotonation; synthesis and unprecedented electro-optic response properties of twisted intramol. charge-transfer π -system chromophores)

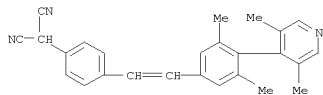
RN 866416-39-9 CAPLUS

CN Propanedinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]- (CA INDEX NAME)

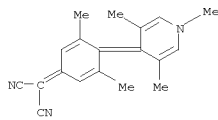


RN 866416-43-5 CAPLUS

CN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]phenyl]- (CA INDEX NAME)



L33 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



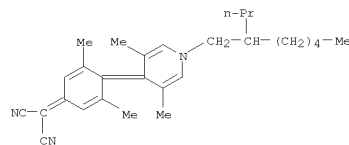
L33 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

IT 866416-41-3P 866416-44-6P

RL: MCA (Modifier or additive use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (synthesis and unprecedented electro-optic response properties of twisted intramol. charge-transfer π -system chromophores)

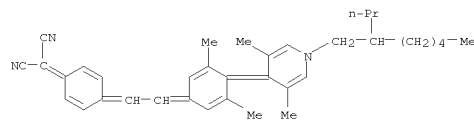
RN 866416-41-3 CAPLUS

CN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)



RN 866416-44-6 CAPLUS

CN Propanedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-(2-propylheptyl)-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethyldene]-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)



IT 866416-40-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis and unprecedented electro-optic response properties of twisted intramol. charge-transfer π -system chromophores)

RN 866416-40-2 CAPLUS

CN Propanedinitrile, 2-[3,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-2,5-cyclohexadien-1-ylidene]- (CA INDEX NAME)

L33 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

2005:80530 Document No. 142:3369710 A New Approach to Highly Electrooptically Active Materials Using Cross-Linkable, Hyperbranched Chromophore-Containing Oligomers as a Macromolecular Dopant. Bai, Yaowen;

Song, Naiheng; Gao, Jian Ping; Sun, Xun; Wang, Xiaomei; Yu, Guomin; Wang, Zhi Yuan (Department of Chemistry, Carleton University, Ottawa, ON, K1S 5B6, Can.). Journal of the American Chemical Society, 127(7), 2060-2061 (English) 2005. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES:

CASREACT 142:336971. Publisher: American Chemical Society.

AB A new, practical approach to a variety of highly electrooptically active polymers for device development is described. It involves the use of a new thermally cross-linkable, hyperbranched oligomer containing nonlinear optical (NLO) chromophores as a macromol. dopant in a common host polymer.

A series of NLO polymeric blends were readily formulated and showed large and stable electrooptic (EO) coeffs. (up to 65 pm/V). In comparison with previously studied linear NLO polyimides and guest-host polymers doped with mol. chromophores and even linear NLO analogous oligomers, this new approach offers clear advantages for device development in terms of improved poling efficiency, larger EO coeffs., good temporal stability, and versatile material formulation.

IT 848599-33-7DP, reaction products with aminobenzocyclobutenone

848599-34-8P 848599-35-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (crosslinkable hyperbranched chromophore-containing oligoesters as macromol. dopants for highly electrooptically active materials)

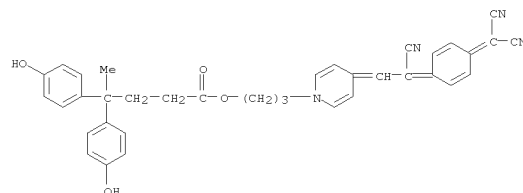
RN 848599-33-7 CAPLUS

CN Benzenebutanoic acid, 4-hydroxy- γ -(4-hydroxyphenyl)- γ -methyl-, 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethyldene]-1(4H)-pyridinyl]propyl ester, polymer with 1,3,5-benzenetricarbonyl trichloride (9CI) (CA INDEX NAME)

CM 1

CRN 848599-30-4

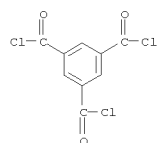
CMF C37 H32 N4 O4



CM 2

CRN 4422-95-1

L33 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
CMF C9 H3 C13 O3

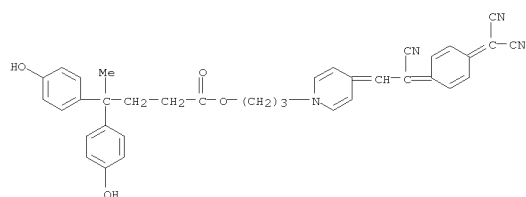


RN	848599-34-8	CAPLUS
CN	Benzenebutanoic acid, 4-hydroxy- γ -(4-hydroxyphenyl)- γ -methyl-, 3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester, polymer with 1,3-benzenediacarbonyl dichloride (9CI) (CA INDEX NAME)	

CM 1

CRN 848599-30-4

CMF C37 H32 N4 O4



CM 2

CRN 99-63-8

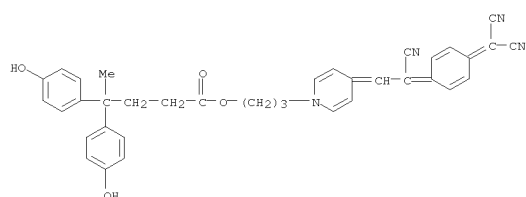
CMF C8 H4 C12 O2

L33 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (monomer; crosslinkable hyperbranched chromophore-contg. oligoesters

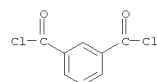
as
macromol. dopants for highly electrooptically active materials)

RN	848599-30-4	CAPLUS
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CN Benzenebutanoic acid, 4-hydroxy- γ -(4-hydroxyphenyl)- γ -methyl-,
3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-
ylidene]ethylidene]-1(4H)-pyridinyl]propyl ester (CA INDEX NA



L33 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

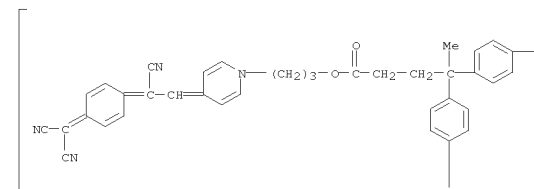


RN 848599-35-9 CAPLUS

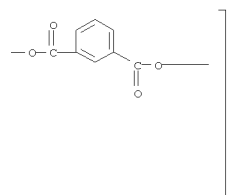
CN

Poly[oxy carbonyl-1,3-phenylenecarbonyloxy-1,4-phenylene[4-[3-[4-[2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propoxy]-1-methyl-4-oxobutylidene]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 848599-30-4P

L33 ANSWER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

2004:977311 Document No. 142:143476 Poled sol-gel materials doped with heterocycle-based push-pull chromophores with second-order optical non-linearity. Brusatin, Giovanna; Innocenzi, Plinio; Guglielmi,

Massimo;

Abbotto, Alessandro; Beverina, Luca; Pagani, Giorgio A.; Casalboni, Mauro;

Sarcinelli, Felice (Dipartimento di Ingegneria Meccanica, Settore Materiali, Università di Padova, Padua, 35131, Italy). Journal of Non-Crystalline Solids, 345&346, 575-579 (English) 2004. CODEN: JNCSEJ. ISSN: 0022-3093. Publisher: Elsevier B.V..

AB In this work, previously studied system of a hybrid sol-gel material doped with a push pull chromophore is optimized by co-doping the matrix with carbazole functionalized units, and achieving enhanced second order NLO properties. The microstructure modifications of the hybrid sol-gel matrix have been investigated during the thermal treatment and the polling procedure, together with the stability of the dopants. The thermal treatment performed during the polling process det. the carbazole units degradation while the chromophore mols. remain unaltered and their absorbance

features are strongly modified.

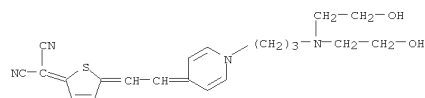
IT 468 721-53-1P

RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)

(chromophore; poled sol-gel materials doped with heterocycle-based push-pull chromophores with second-order optical non-linearity)

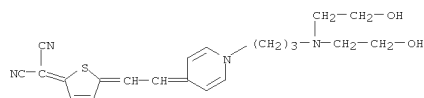
	push-pull	chromo
RN	468721-53-1	CAPLUS

CN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidenel]-2(5H)-thienylidenel]- (CA INDEX NAME)

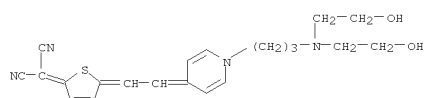


10560670.trn

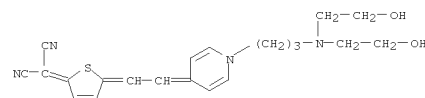
L33 ANSWER 10 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2004:906026 Document No. 141:386133 Hybrid organic-inorganic material with nonlinear optical response based on organic chromophores and process for the preparation thereof. Sarcinelli, Felice; Abboto, Alessandro; Beverina, Luca; Pagani, Giorgio; Brusatin, Giovanna; Innocenzi, Plinio; Casalboni, Mauro (Universita'Degli Studi di Milano-Bicocca, Italy; Chinelli, Maria Giovanna). PCT Int. Appl. WO 2004092820 A1 20041028, 23 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.
APPLICATION: WO 2004-EP3594 20040405. PRIORITY: IT 2003-PD80 20030418.
AB Hybrid organic-inorg. nonlinear optical materials comprising a cross-linked matrix hosting ≥ 1 organic chromophore which may be dipole-oriented using elec. fields are described which include an effective amount of carbazole derivs. compds. having a C1-18 (un)branched alkyl chain with ≥ 1 hydroxyl group bonded to the N and substituents independently selected from H, lower alkyl, and aryl groups bonded to the ring carbons. Methods for preparing the materials are described which entail providing
a cross linked matrix wherein an organic chromophore is hosted in which the carbazole derivs. are provided in the matrix. Sol-gel processing may be used to provide the materials. Electrooptical modulators employing the materials are also described.
IT 468721-53-1
RI: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(hybrid organic-inorg. materials with nonlinear optical response based on organic chromophores and their preparation and use)
RN 468721-53-1 CAPLUS
CN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]- (CA INDEX NAME)



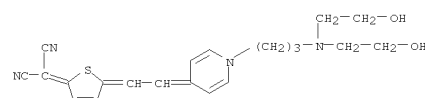
L33 ANSWER 12 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2002:815193 Document No. 138:392551 Entrapping of Push-Pull Zwitterionic Chromophores in Hybrid Matrices for Photonic Applications. Innocenzi, Plinio; Brusatin, Giovanna; Abboto, Alessandro; Beverina, Luca; Pagani, Giorgio A.; Casalboni, Mauro; Sarcinelli, Felice; Pizzoferrato, Roberto (Dipartimento di Ingegneria Meccanica, Universita di Padova, Padua, 35131, Italy). Journal of Sol-Gel Science and Technology, 26(1/2/3), 967-970 (English) 2003. CODEN: JSGTEC. ISSN: 0928-0707. Publisher: Kluwer Academic Publishers.
AB A new class of heterocycle-based push-pull chromophores showing enhanced nonlinear properties characterized by an aromatic and highly zwitterionic ground state and a quinoid/neutral excited state have been synthesized to be incorporated in sol-gel hybrid systems. This class of compds. shows very large 1st mol. hyperpolarizabilities ($\beta_{H1} \leq 27000 + 10^{-48}$ esu) and is a promising candidate for photonic applications where large 2nd order nonlinearities are required. In spite of their
very large hyperpolarizability and chemical and thermal stability, these chromophores are decomposed in presence of light and O (photobleaching)
and are sensitive to acidic environments due to the carbanionic nature of the donor moiety. A hybrid matrix, based on N-[(3-trimethoxysilyl)propyl]ethylenediamine and 3-glycidoxypolypropyltrimethoxysilane, was specifically designed to allow the incorporation of such zwitterionic compds. assuring at the same time a good temporal stability of the optical properties. Amine functionalization was found very effective in reducing the photobleaching by acting on these chromophores via the singlet O. Second harmonic generation was observed on poled films, and an order parameter, Φ , of 0.17 was estimated. The nonlinear coefficient deff of the samples was estimated at
thus a value 2 times larger than for d11 of quartz that, from literature data, is .apprx.0.335 pm/V.
IT 468721-53-1
RI: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process);
USES (Uses)
(entrapping of push-pull zwitterionic chromophores in hybrid matrices for photonic applications)
RN 468721-53-1 CAPLUS
CN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]- (CA INDEX NAME)



L33 ANSWER 11 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2004:43724 Document No. 141:92821 Hybrid organic-inorganic materials containing poled zwitterionic push-pull chromophores. Brusatin, Giovanna; Innocenzi, Plinio; Abboto, Alessandro; Beverina, Luca; Pagani, Giorgio A.; Casalboni, Mauro; Sarcinelli, Felice; Pizzoferrato, Roberto (Dipartimento di Ingegneria Meccanica, Universita di Padova, Padua, 35131, Italy). Journal of the European Ceramic Society, 24(6), 1853-1856 (English) 2004. CODEN: JECSEK. ISSN: 0955-2219. Publisher: Elsevier Science Ltd..
AB Dihydroxy-functionalized zwitterionic push-pull chromophores have been introduced in 3-glycidoxypolypropyltrimethoxysilane, tetraethylorthosilicate and N-[(3-trimethoxysilyl)propyl]ethylenediamine derived hybrid materials. Hybrid films have been deposited as thick layers via spin-coating. The amine groups introduced with the organically modified alkoxide bearing amine functionalities have an effective scavenger effect of the dye photobleaching. The addition, during the synthesis of the precursor sol, of N-hydroxyl carbazole has allowed to reach up to 20% of chromophore concentration avoiding the formation of aggregates within the matrix. The nonlinear optical properties of the material, after poling, have a good temporal stability, with retention of .apprx.70% of the initial signal value, after several months, providing a d33 value of .apprx.50+70 pm V-1 at the wavelength of 1.064 μ m.
IT 468721-53-1
RI: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(BisOH.PETCN,zwitterionic chromophore, composites with ceramer matrix; preparation and properties of hybrid organic-inorg. materials containing poled zwitterionic push-pull chromophores as nonlinear optical materials)
RN 468721-53-1 CAPLUS
CN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]- (CA INDEX NAME)

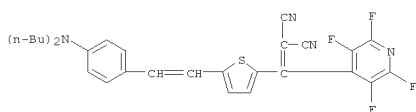


L33 ANSWER 13 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2002:582770 Document No. 137:301479 Incorporation of zwitterionic push-pull chromophores into hybrid organic-inorganic matrices. Innocenzi, Plinio; Miorin, Enrico; Brusatin, Giovanna; Abboto, Alessandro; Beverina, Luca; Pagani, Giorgio A.; Casalboni, Mauro; Sarcinelli, Felice; Pizzoferrato, Roberto (Department of Mechanical Engineering, Materials Section, University of Padova, Padua, I-35131, Italy). Chemistry of Materials, 14(9), 3758-3766 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.
AB Dihydroxy-functionalized zwitterionic push-pull chromophores were synthesized and incorporated into 3-glycidoxypolypropyltrimethoxysilane- and N-[(3-trimethoxysilyl)propyl]ethylenediamine-derived hybrid materials. The functionalization allowed the dye to form covalent bonds to the matrix network, reaching up to 5% molar concentration without aggregation. The host hybrid material was also specifically designed to reduce photobleaching of the dye and to avoid the protonation of the carbanionic species that occurs in acidic media. The host material exhibits very good film-forming properties, and thick highly transparent doped layers can be fabricated via dip-coating. Upon incorporation into the matrix, the dye exhibits a reduction of photobleaching due to the scavenger effect of the amine groups.
The strong neg. solvatochromism exhibited by this class of chromophores was used to probe the phys.-chemical environment within the pores. Dye-functionalized hybrid sol-gel materials were submitted to poling expts., and the second harmonic signal was measured. Good temporal stability of the NLO materials (retention of .apprx.85% of the initial signal value) was recorded after 3 mo, providing a d33 value equal to 0.66 pm/V. This system represents one of the few examples of the successful incorporation of zwitterionic push-pull chromophores in sol-gel materials.
IT 468721-53-1
RI: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process)
(Incorporation of zwitterionic push-pull chromophores into hybrid organic-inorg. matrices)
RN 468721-53-1 CAPLUS
CN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]- (CA INDEX NAME)

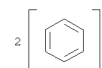


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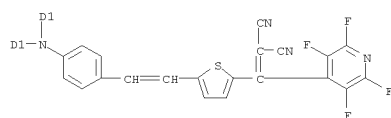
L33 ANSWER 14 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:819816 Document No. 134:154859 Design and synthesis of highly efficient nonlinear optical chromophores. Wu, Xiaoming; Jen, Alex K.-Y. (Department of Chemistry, Northeastern University, Boston, MA, 02115, USA). Materials Research Society Symposium Proceedings, 598(Electrical, Optical, and Magnetic Properties of Organic Solid-State Materials V), BB11.45/1-BB11.45/5 (English) 2000. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.
 AB Two series of highly hyperpolarizable nonlinear optical (NLO) chromophores, containing perfluoroaryl dicyanovinyl and Ph tetracyanobutadienyl acceptors, have been designed and synthesized. These chromophores show good thermal and chemical stability. The 3D conformational structures, confirmed by computational modeling, enhance polymer matrix compatibility and decrease optical loss of the polymer films. The guest-host polymers of the chromophores show large electro-optical activities.
 IT 302965-26-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (design and synthesis of highly efficient nonlinear optical chromophores)
 RN 302965-26-0 CAPLUS
 CN Propanedinitrile, 2-[[[5-[2-[4-(dibutylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (CA INDEX NAME)



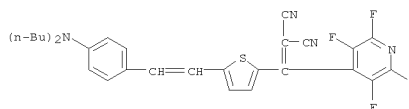
L33 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



2 (D1-Bu-n)

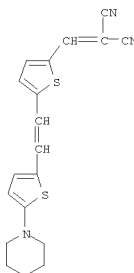


L33 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:414740 Document No. 133:322367 Design and synthesis of highly efficient chromophores and polymers for electro-optic applications. Jen, Alex K.-Y.; Ma, Hong; Wu, Xiaoming; Wu, Jianyao; Liu, Sen; Herguth, Petra; Marder, Seth R.; Shu, Ching-Fong; Dalton, Larry R. (Department of Chemistry, Northeastern University, Boston, MA, 02115, USA). MCLC S&T, Section B: Nonlinear Optics, 22(1-4), 3-14 (English) 1999. CODEN: MCLOEB. ISSN: 1058-7268. Publisher: Gordon & Breach Science Publishers.
 AB A series of highly efficient, chemical and thermally stable (Td ≤ 390°) nonlinear optical chromophores were developed by using a 2-tetrafluoropyridinyl-dicyanovinyl group as the electron acceptor for a series of dialkyl- or diphenyl-amino substituted thiophene stilbenes. Excellent tradeoffs among absorption, mol. nonlinearity and thermal stability were achieved. Electro-optic polymers based on the guest/host systems and covalent attachment of chromophores onto high temperature polyquinoline backbones demonstrated high E-O activities (r33 ≤ 28 pm/V at 1.3 μm) and good optical, elec. and mech. properties.
 IT 302965-26-0P 303031-08-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (design and synthesis of highly efficient chromophores and polymers for electro-optic applications)
 RN 302965-26-0 CAPLUS
 CN Propanedinitrile, 2-[[[5-[2-[4-(dibutylamino)phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (CA INDEX NAME)



RN 303031-08-5 CAPLUS
 CN Propanedinitrile, [[5-[2-[4-[bis(butylphenyl)amino]phenyl]ethenyl]-2-thienyl](2,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (9CI) (CA INDEX NAME)

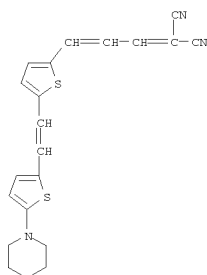
L33 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 1997:332662 Document No. 127:25334 Original Reference No. 127:4819a,4822a The role of London forces in defining noncentrosymmetric order of high dipole moment-high hyperpolarizability chromophores in electrically poled polymeric thin films. Dalton, Larry R.; Harper, Aaron W.; Robinson, Bruce H. (Loker Hydrocarbon Res. Inst., Univ. Southern California, Los Angeles, CA, 90089-1661, USA). Proceedings of the National Academy of Sciences of the United States of America, 94(10), 4842-4847 (English) 1997. CODEN: PNASAG. ISSN: 0027-8424. Publisher: National Academy of Sciences.
 AB Graphs of 2nd harmonic generation coeffs. and electrooptic coeffs. (measured by ellipsometry, attenuated total reflection, and 2-slit interference modulation) as a function of chromophore number d. (chromophore loading) are exptl. observed to exhibit maxima for polymers containing chromophores characterized by large dipole moments and polarizabilities. Modified London theory is used to demonstrate that this behavior can be attributed to the competition of chromophore-applied elec. field and chromophore-chromophore electrostatic interactions. The comparison of theor. and exptl. data explains why the promise of exceptional macroscopic 2nd-order optical nonlinearity predicted for organic materials was not realized and suggests routes for circumventing current limitations to large optical nonlinearity. The results also suggest extensions of measurements and theor. methods to achieve an improved understanding of intermol. interactions in condensed phase materials including materials prepared by sequential synthesis and block copolymer methods.
 IT 161419-15-4 161419-16-5
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (London forces role in defining noncentrosym. order in elec. poled polymeric films of high dipole moment-high hyperpolarizability)
 RN 161419-15-4 CAPLUS
 CN Propanedinitrile, 2-[[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]- (CA INDEX NAME)



RN 161419-16-5 CAPLUS
 CN Propanedinitrile, 2-[3-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]- (CA INDEX NAME)

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L33 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L33 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

1995:820373 Document No. 123:353882 Original Reference No. 123:63235a,63238a

Large second-order optical nonlinearities and enhanced thermal stabilities in extended thiophene-containing compounds. Gilmour, Sandra; Marder, Seth

R.; Perry, Joseph W.; Cheng, Lap Tak (Jet Propulsion Lab., California Inst. Technol., Pasadena, CA, 91109, USA). Advanced Materials (Weinheim, Germany), 6(6), 494-6 (English) 1994. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: VCH.

AB In order to increase the degree of ground-state polarization, thiophene-containing compds. with a 3-phenyl-5-isoxazolone acceptor were prepared and their nonlinearities were compared to compds. with a dicyanovinyl acceptor. An enhanced nonlinearity and excellent long-term stability at 80° was observed

IT 161419-15-4

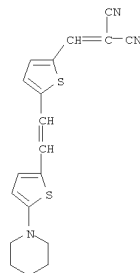
RL: PRP (Properties)

(thiophene-containing compds. with large 2nd-order optical nonlinearities

and enhanced thermal stabilities)

RN 161419-15-4 CAPLUS

CN Propanedinitrile, 2-[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]- (CA INDEX NAME)



IT 161419-16-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

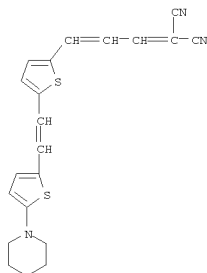
(thiophene-containing compds. with large 2nd-order optical nonlinearities

and enhanced thermal stabilities)

RN 161419-16-5 CAPLUS

CN Propanedinitrile, 2-[3-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]- (CA INDEX NAME)

L33 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L33 ANSWER 18 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

1995:35025 Document No. 122:163483 Original Reference No. 122:30099a,30102a Enhanced second-order optical nonlinearities in extended thiophene containing compounds. Gilmour, Sandra; Marder, Seth R.; Perry, Joseph W.;

Cheng, Lap-Tak (Jet Propulsion Laboratory, California Institute Technology, Pasadena, CA, 91109, USA). Proceedings of SPIE-The International Society for Optical Engineering, 2143(ORGANIC, METALLO-ORGANIC AND POLYMERIC MATERIALS FOR NONLINEAR OPTICAL APPLICATIONS), 117-23 (English) 1994. CODEN: PSISDG. ISSN: 0277-786X. GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The synthesis and first hyperpolarizabilities (β) of the donor-acceptor-substituted thiophene-containing compds. I, II, III, and IV are reported. III and IV, incorporating the acceptor group 3-phenyl-5-isoxazolone (that can gain aromaticity upon charge separation) had

larger β than the analogous I and II mols. containing a dicyanovinyl acceptor. For both acceptors, insertion of a vinyl group between the thiophene bridge and methine carbon of the acceptor enhances the second-order hyperpolarizability but does not lead to a significant decrease in thermal stability. The mols. (1-2%) were incorporated into PMMA and the electro-optic coeffs. of these host-guest compns. measured.

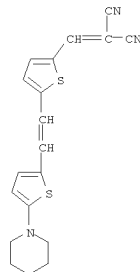
IT 161419-15-4P 161419-16-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(enhanced second-order optical nonlinearities in extended thiophene-containing compds.)

RN 161419-15-4 CAPLUS

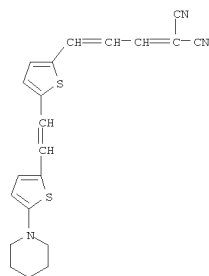
CN Propanedinitrile, 2-[[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]- (CA INDEX NAME)



RN 161419-16-5 CAPLUS

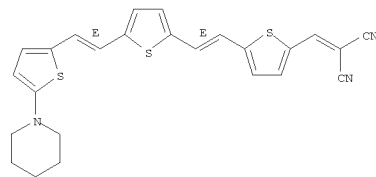
10560670.trn

L33 ANSWER 18 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 CN Propanedinitrile, 2-[3-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]- (CA INDEX NAME)



L33 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN
 1994;544723 Document No. 121:144723 Original Reference No.
 121:25969a,25972a
 Second-order nonlinear optical properties of thiophene containing chromophores with extended conjugation. Gilmour, Sandra; Jen, Alex K-Y.; Marder, Seth R.; Neissink, A. Jennifer; Perry, Joseph W.; Skindhoej, Joergen; Cai, Young Ming (Jet Propul. Lab., California Inst. Technol., Pasadena, CA, 91109, USA). Materials Research Society Symposium Proceedings, 328(Electrical, Optical, and Magnetic Properties of Organic Solid State Materials), 485-90 (English) 1994. CODEN: MRSFPH. ISSN: 0272-9172.
 AB The synthesis and first hyperpolarizabilities (β) of various donor-acceptor substituted thiophene containing compds with extended conjugation are reported. Results indicate that replacing Ph rings with less aromatic thiophene moieties enhances the second-order hyperpolarizability. Incorporating the acceptor group, N,N'-diethylthiobarbituric acid, that can gain aromaticity upon charge-separation has also led to an increase in the nonlinearity. Some of the mols. have been incorporated into poly(Me methacrylate) and the electrooptic coeffs. of these host-guest polymers were measured.
 IT 157300-03-3
 RL: FRP (Properties)
 (second-order nonlinear optical properties of)
 RN 157300-03-3 CAPLUS
 CN Propanedinitrile, [[5-[2-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]methylene]-, (E,E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



10560670.trn

=> s merocyanine

4027 MEROCYANINE

904 MEROCYANINES

L34

4286 MEROCYANINE

(MEROCYANINE OR MEROCYANINES)

=> s l34 and review/dt

2385147 REVIEW/DT

L35

91 L34 AND REVIEW/DT

=> d scan ti

10560670.trn

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Phototherapeutic potential of alternative photosensitizers to porphyrins
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Organic colorants in light harvesting
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Pharmacological purging of bone marrow with drugs other than
cyclophosphamide derivatives
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Dyes for dye diffusion thermal transfer (D2T2) printing
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Current topics in photochemistry of sensitizing dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Merocyanine 540
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Recent progress in the study of ultra-thin films
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Dye-based organogels: Stimuli-responsive soft materials based on
one-dimensional self-assembling aromatic dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT

=> s l35 and furna
2 FURNA
119 FURNAS
120 FURNA
(FURNA OR FURNAS)
L36 0 L35 AND FURNA

=> s l35 and furan
49439 FURAN
8356 FURANS
53345 FURAN
(FURAN OR FURANS)
L37 0 L35 AND FURAN

10560670.trn

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Flash photolysis study of the mechanism of photocoloring of spiropyrans
of
the naphtho[1,8-b,c]furan series
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Furan substituted thiazoles and selenazoles and sensitizing dyes
therefrom
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Chemistry of 1,8-substituted naphthalenes. III. Synthesis of salts of
2-(4'-methoxy-8'-hydroxy-1'-naphthyl)benzopyrylium and photochromic
5-methoxynaphtho[1,8-b,c]furan-2-spiro-2'-[2H]chromenes from
them
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI A Tubular Biocontainer: Metal Ion-Induced 1D Assembly of a Molecularly
Engineered Chaperonin
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Merocyanine dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Structure-property dependence of the first hyperpolarizabilities of
organometallic merocyanines based on the μ -vinylcarbynediiron
acceptor and ferrocene donor
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Chemical and chemotherapeutic studies on furan derivatives.
XXIV. 3-Amino-as-triazine derivatives
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Effect of heteroaromatic annulation with five-membered rings on the
photochromism of 2H-[1]-benzopyrans
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L38 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
TI Solvent effects in merocyanine spectra
ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> FIL STNGUIDE

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
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FILE CONTAINS CURRENT INFORMATION.
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=>

Uploading

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Do you want to switch to the Registry File?

Choice (Y/n):

Switching to the Registry File...

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> FILE REGISTRY

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

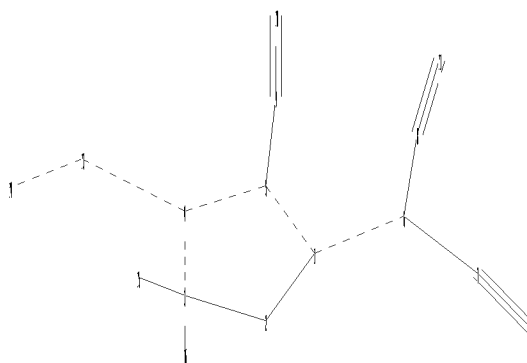
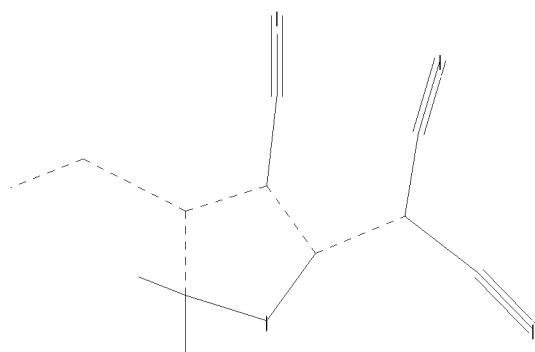
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10560670-2.str

10560670.trn



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6 7 8 9
ring nodes :
1 2 3 4 5
ring/chain nodes :
10 11 12 13 14 15 16
chain bonds :
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ring/chain bonds :
13-14
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 1-6 2-3 3-4 4-5 4-13 7-12 8-11 9-10 13-14
exact bonds :
3-15 3-16 5-9 6-7 6-8
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Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS
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L39 STRUCTURE UPLOADED

=> s 139

SAMPLE SEARCH INITIATED 16:06:42 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 57 TO ITERATE

100.0% PROCESSED 57 ITERATIONS 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

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FULL FILE PROJECTIONS: ONLINE **COMPLETE**
                        BATCH **COMPLETE**
PROJECTED ITERATIONS: 688 TO 1592
PROJECTED ANSWERS: 608 TO 1472
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10560670.trn

L40 50 SEA SSS SAM L39

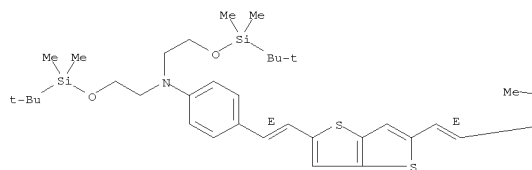
=> d scan

10560670.trn

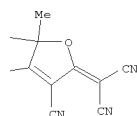
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-
MF C42 H54 N4 O3 S2 S12

Double bond geometry as shown.

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PAGE 1-B

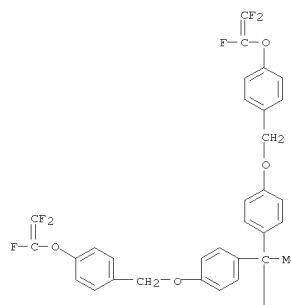


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):20000

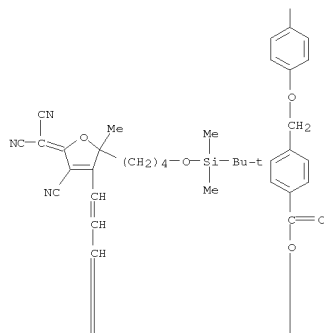
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 4-[[[4-[1,1-bis[4-[[[4-[(trifluoroethenyl)oxy]phenyl]methoxy]phenyl]ethyl]phenoxy]methyl]-, [[4-[2-[3-[3-[4-cyano-5-(dicyanomethylene)-2-[4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]butyl]-2,5-dihydro-2-methyl-3-furanyl]-2-propenylidene]-5,5-dimethyl-1-cyclohexen-1-yl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
MF C134 H120 F12 N4 O16 S1

PAGE 1-A

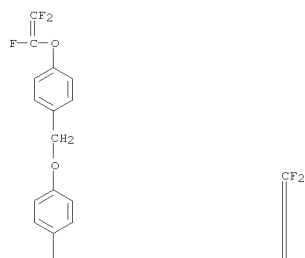


L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A

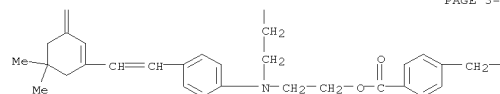


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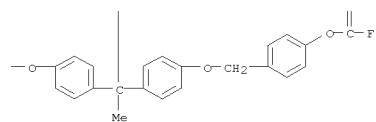


L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 3-A



PAGE 3-B



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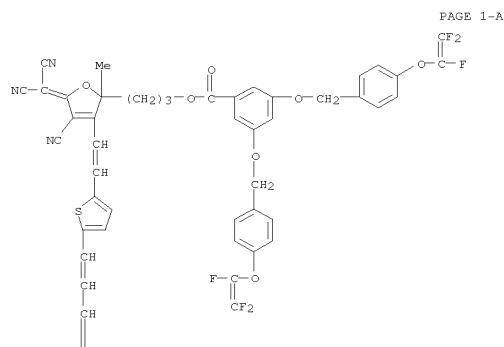
10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN 1,2-Benzenedicarboxylic acid,
1-[6-[[4-[4-[5-[2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl)methoxy]benzoyl]oxy]propyl]-4-cyano-5-

(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester

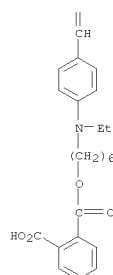
MF C69 H58 F6 N4 O11 S
CI CCM



L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

PAGE 2-A



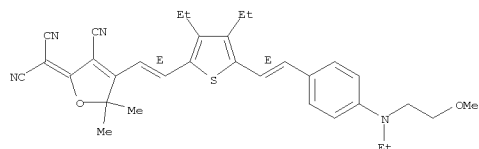
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile,
2-[3-cyano-4-[(1E)-2-[3,4-diethyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-

MF C33 H36 N4 O2 S

Double bond geometry as shown.

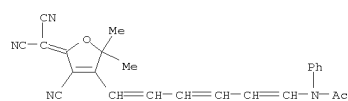


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Acetamide, N-[6-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]-1,3,5-hexatrien-1-yl]-N-phenyl-

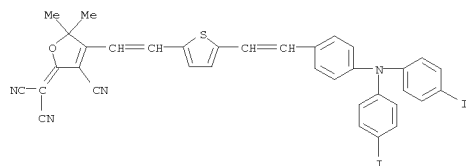
MF C24 H20 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

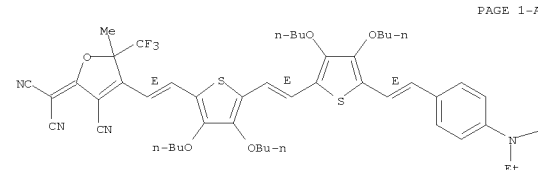
10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[4-[2-[5-[2-[4-[bis(4-iodophenyl)amino]phenyl]ethenyl]-
2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C36 H24 I2 N4 O S
CI CCM



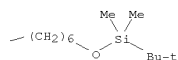
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanlydene]-
MF C60 H81 F3 N4 O6 S2 Si
Double bond geometry as shown.



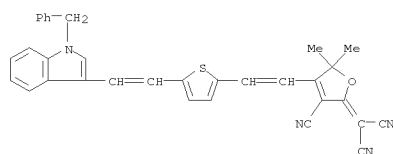
PAGE 1-A

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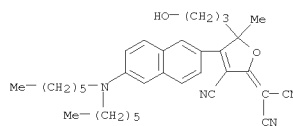
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-[5-[2-[1-(phenylmethyl)-1H-indol-3-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-furanlydene]-
MF C33 H24 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

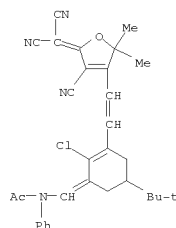
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[6-(dihexylamino)-2-naphthalenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanlydene]-
MF C34 H42 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

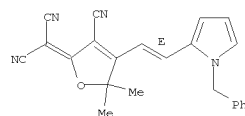
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Acetamide,
N-[[2-chloro-3-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-
dimethyl-3-furanyl]ethenyl]-5-(1,1-dimethylethyl)-2-cyclohexen-1-
ylidene]methyl]-N-phenyl-
MF C31 H31 Cl N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[1-(phenylmethyl)-1H-
pyrrol-2-yl]ethenyl]-2(5H)-furanlydene]-
MF C23 H18 N4 O

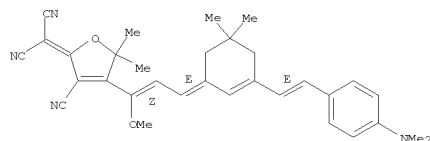
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1Z,3E)-3-{3-[(1E)-2-[4-(
(dimethylamino)phenyl]ethenyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
methoxy-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-1-
MF C32 H34 N4 O2

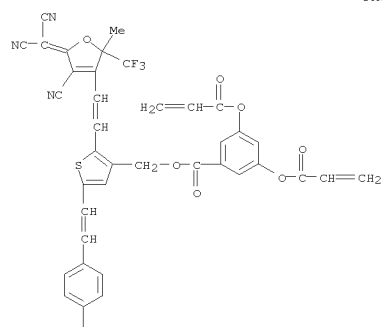
Double bond geometry as shown.



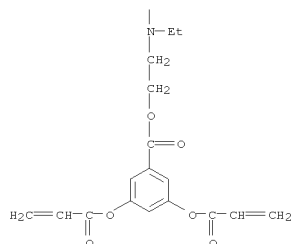
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[[1-oxo-2-propen-1-yl]oxy]-,
[5-[2-[4-[[2-[[[3,5-bis[[1-oxo-2-propen-1-yl]oxy]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-2-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furyl]ethenyl]-3-thienyl]methyl ester
MF C55 H41 F3 N4 O13 S

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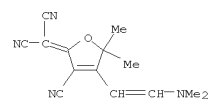


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

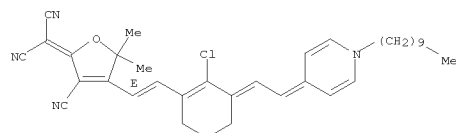
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-(dimethylamino)ethenyl]-5,5-dimethyl-
2(5H)-furanilydene]-
MF C14 H14 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

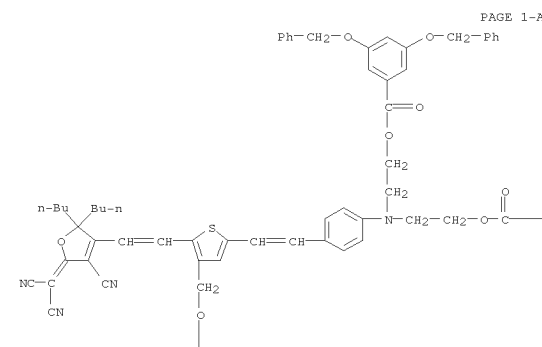
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[2-chloro-3-[2-(1-decyl-4(1H)-
pyridinylidene)ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-
2(5H)-furanilydene]-
MF C35 H41 Cl N4 O

Double bond geometry as described by E or Z.

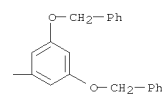


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis(phenylmethoxy)-,
[[4-[2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy)methyl]-5-[2-[2,2-dibutyl-4-
cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-2-
thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
MF C98 H88 N4 O13 S

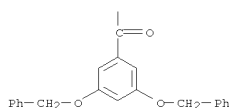


PAGE 1-B



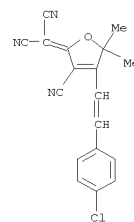
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L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PAGE 2-A



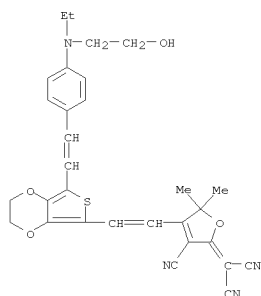
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-(4-chlorophenyl)ethenyl]-3-cyano-5,5-dimethyl-
2(5H)-furanlylidene]-
MF C18 H12 Cl N3 O



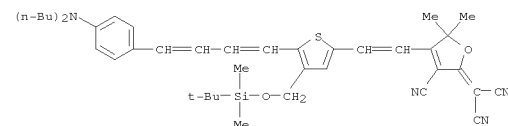
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [3-cyano-4-[(1E)-2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-7-[(1E)-2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (9CI)
MF C37 H44 N4 O5 S Si
CI IDS

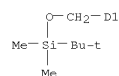


PAGE 1-A

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]-
MF C41 H52 N4 O2 S Si



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

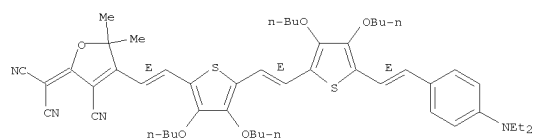


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10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C50 H62 N4 O5 S2

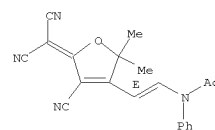
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

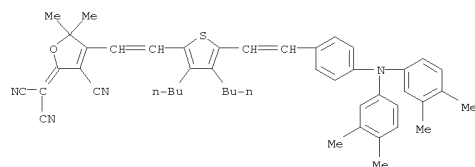
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Acetamide, N-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-N-phenyl-
MF C20 H16 N4 O2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

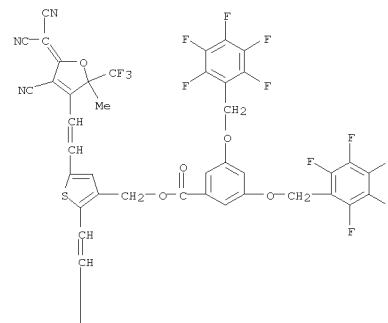
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(3,4-dimethylphenyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C48 H50 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1H-Pyrrole-1-propanoic acid, 2,5-dihydro-2,5-dioxo-, 2-[[4-[2-[3-[[[3,5-bis[(2,3,4,5,6-pentafluorophenyl)methoxy]benzoyl]oxy]methyl]-5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]ethyl ester
MF C57 H36 F13 N5 O9 S

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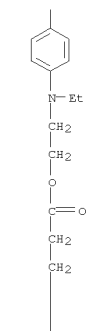


10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

PAGE 3-A

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN 1,3-Isobenzofuranidone, 5,5'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 2,4-diaminophenol dihydrochloride, 6-[[4-[[1E]-2-[3,4-dibutoxy-5-[[1E]-2-[4-cyano-5-(dicyanamethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[[trifluoroethenoxy]oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate (ester) 4-[[trifluoroethenoxy]oxy]benzoate (ester)

```

      (9CI)
MF  C73 H81 F3 N4 O12 S2 . x (C19 H6 F6 O6 . C6 H8 N2 O . 2 Cl H)x . x C9 H5
    F3 O3

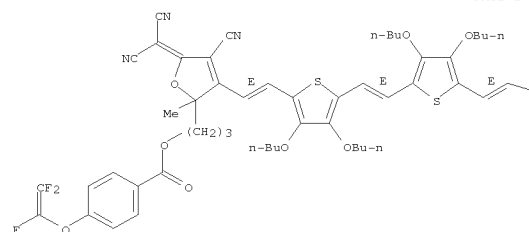
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RELATED POLYMERS AVAILABLE WITH POLYLINK

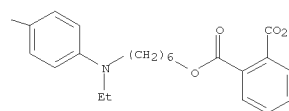
CM 1

Double bond geometry as shown.

PAGE 1-A



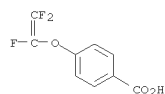
PAGE 1-B



L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

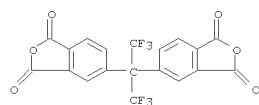
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CM 2

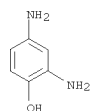


CM 3

CM 4



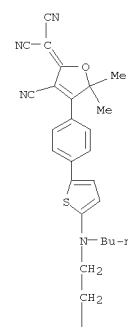
CM 5


$$\bullet 2 \text{ HCl}$$

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[4-[4-[5-(butyl(2-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)ethylamino)-2-thienyl]phenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-methyl]propanedinitrile, C30 H27 N5 O3 S

PAGE 1-A



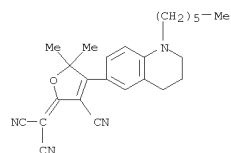
PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

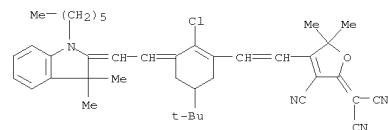
10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-(1-hexyl-1,2,3,4-tetrahydro-6-quinoliny)-
 5,5-dimethyl-2(5H)-furylidene]-
 MF C25 H28 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

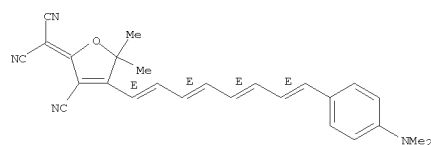
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[2-chloro-5-(1,1-dimethylethyl)-3-[2-(1-hexyl-
 1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene)ethylidene]-1-cyclohexen-1-
 yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C40 H47 Cl N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-4-[(1E,3E,5E,7E)-8-[4-(dimethylamino)phenyl]-
 1,3,5,7-octatetraen-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C26 H24 N4 O

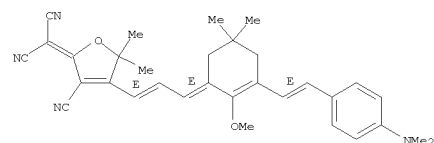
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-3-[3-[(1E)-2-[4-(
 dimethylamino)phenyl]ethenyl]-2-methoxy-5,5-dimethyl-2-cyclohexen-1-
 ylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C32 H34 N4 O2

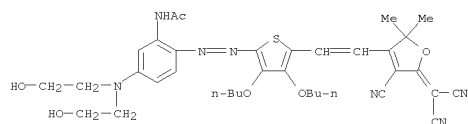
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

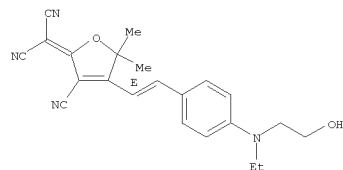
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Acetamide, N-[5-[bis(2-hydroxyethyl)amino]-2-[2-[3,4-dibutoxy-5-[2-[4-
cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-
thienyl]diazenyl]phenyl]-
MF C36 H43 N7 O6 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[4-[ethyl(2-
hydroxyethyl)amino]phenyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
MF C22 H22 N4 O2

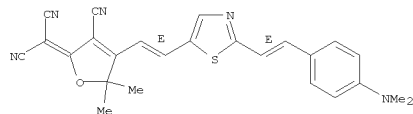
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

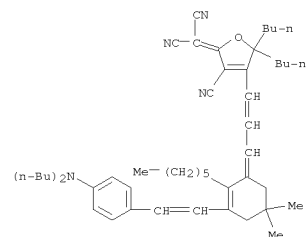
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[2-[(1E)-2-[4-
(dimethylamino)phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]O
MF C25 H21 N5 O S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

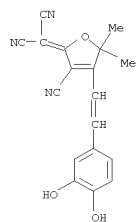
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[5,5-dibutyl-3-cyano-4-[3-[3-[2-[4-(
(dibutylamino)phenyl)ethenyl]-2-hexyl-5,5-dimethyl-2-cyclohexen-1-ylidene]-
1-propen-1-yl]-2(5H)-furanilydene]-
MF C49 H68 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

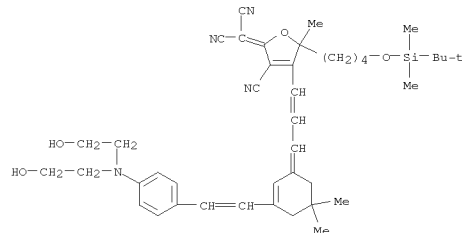
10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-(3,4-dihydroxyphenyl)ethenyl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C18 H13 N3 O3



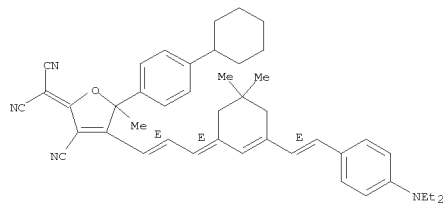
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[3-[3-[2-[4-bis(2-hydroxyethyl)amino]phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-3-cyano-5-[4-[[1,1-dimethylethyl]dimethylsilyl]oxy]butyl]-5-methyl-2(5H)-furylidene]-
 MF C42 H56 N4 O4 Si



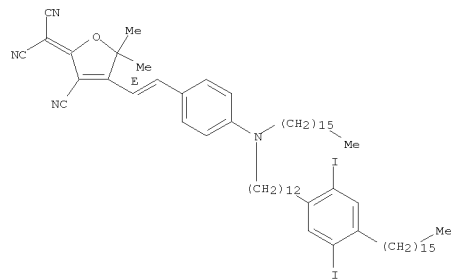
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E,3E)-3-[3-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-5-methyl-2(5H)-furylidene]-
 MF C44 H48 N4 O
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

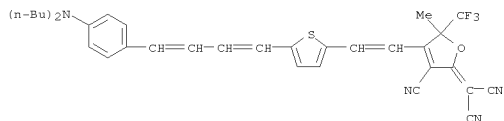
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[4-[hexadecyl[12-(4-hexadecyl-2,5-diiodophenyl)dodecyl]amino]phenyl]ethenyl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C68 H104 I2 N4 O
 CI CCM
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

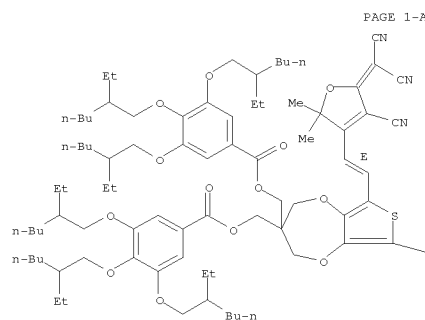
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-
butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-
furan-3-ylidene]-
MF C34 H33 F3 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

```
L40 50 ANSWERS  REGISTRY  COPYRIGHT 2010 ACS on STN
IN  Benzoic acid, 3,4,5-tris(2-ethylhexyl)oxy)-,
    [8-[(1E)-2-[4-cyano-5-(dicyanomethyl)ene]-2,5-dihydro-2,2-dimethyl-3-
    furanyl]ethenyl]-8'-(1E)-2-[4-(dibutylamino)phenyl]ethenyl][6,6'-bi-2H-
    thieno[3,4-b][1,4]dioxepin]-3,3'(4H,4'H)-diylidene]tetrakis(methylene)
    ester (9CI)
MF  C170 H260 N4 O25 S2
```

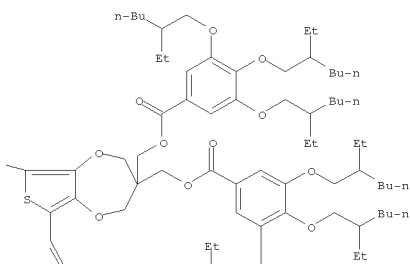
Double bond geometry as shown.



PAGE 1-A

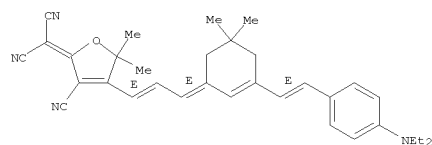
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B



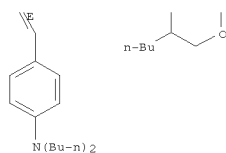
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-3-[3-[(1E)-2-[4-(
(diethylamino)phenyl)ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C33 H36 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

PAGE 2-B

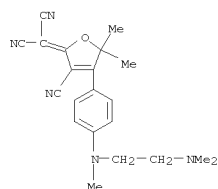


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[4-[2-

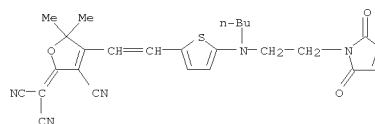
(dimethylamino)ethyl)methylamino]phenyl)-5,5-dimethyl-2(5H)-furylidene]-
MF C21 H23 N5 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[4-[2-[5-[butyl[2-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)ethyl]amino]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-

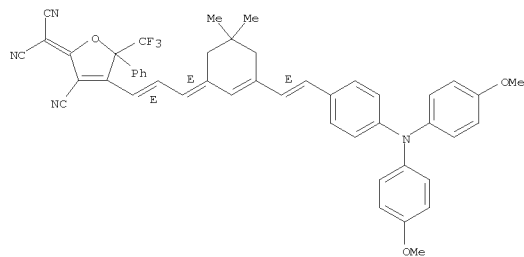


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

440 30 ANSWERS REGULAR COPYRIGHT 2010 ACS OR SIN
IN Propanedinitrile, 2-[4-(1E,3E)-3-[3-(1E)-2-[4-[bis(4-
methoxyphenyl)amino]phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
propen-1-yl]-3-cyano-5-phenyl-5-(trifluoromethyl)-2(5H)-furanylidene]-
MF C48 H39 F3 N4 O3

Double bond geometry as shown.

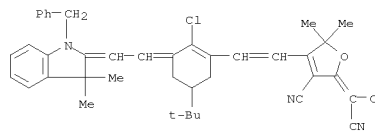


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[4-[2-(2-chloro-3-[2-[1,3-dihydro-3,3-dimethyl-1-(phenylmethyl)-2H-indol-2-ylidene]ethylidene]-5-(1,1-dimethylethyl)-1-cyclohexen-1-yl)ethenyl]-3-cyano-5,5-dimethyl-2 (5H)-furan-1-ylidene]-

MF C41 H41 Cl N4 O

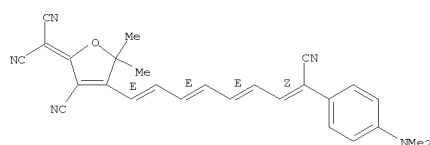


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E,5E,7Z)-8-cyano-8-[4-(dimethylamino)phenyl]-1,3,5,7-octatetraen-1-yl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C27 H23 N5 O

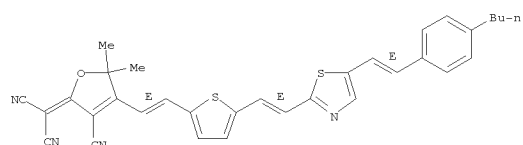
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-(4-butylphenyl)ethenyl]-2-thiazolyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C33 H28 N4 O S2

Double bond geometry as shown.

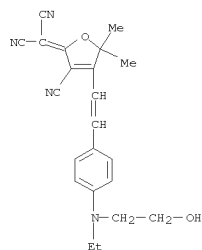


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, polymer with 1,1'-sulfonylbis[4-chlorobenzene], 2-[[4-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]phenyl]ethylamino]ethyl ester
 MF C22 H22 N4 O2 . x (C17 H18 O4 . C12 H8 Cl2 O2 S)x

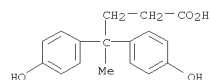
RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

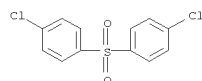


CM 2

CM 3

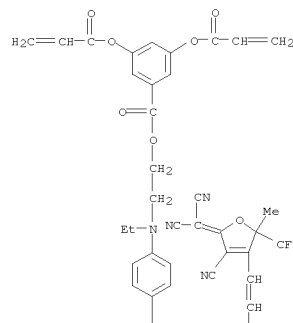


CM 4

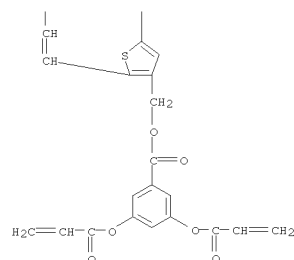


L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[(1-oxo-2-propen-1-yl)oxy]-, [2-[2-[4-[[2-[[[3,5-bis[(1-oxo-2-propen-1-yl)oxy]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-3-thienyl]methyl ester
 MF C55 H41 F3 N4 O13 S

PAGE 1-A



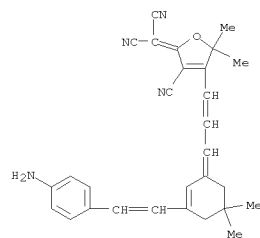
PAGE 2-A



10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

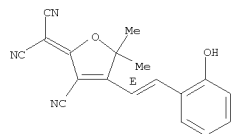
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[3-[2-(4-aminophenyl)ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]-
MF C29 H28 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-(2-hydroxyphenyl)ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]-
MF C18 H13 N3 O2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MERO CYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

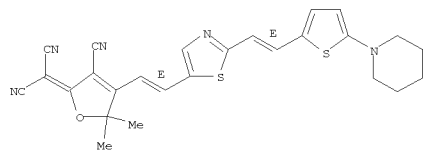
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L39 STRUCTURE UPLOADED
L40 50 S L39

=> s l39 full
FULL SEARCH INITIATED 16:07:50 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 1024 TO ITERATE

10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-furanylidene]-
MF C26 H23 N5 O S2

Double bond geometry as shown.

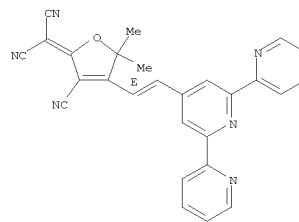


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):111

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2,2':6',2''-terpyridin]-4'-ylethenyl]-2(5H)-furanylidene]-
MF C27 H18 N6 O

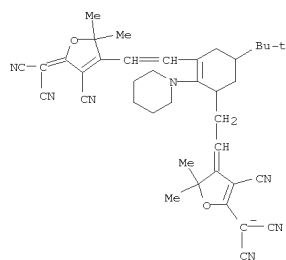
Double bond geometry as shown.



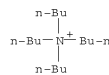
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1-Butanaminium, N,N,N-tributyl-, salt with
2-[4-[2-[3-[2-[4-cyano-5-(dicyanomethyl)-2,2-dimethyl-3(2H)-
furanylidene]ethyl]-5-(1,1-dimethylethyl)-2-(1-piperidinyl)-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]propanedinitrile
(1:1)
MF C39 H42 N7 O2 . C16 H36 N

CM 1

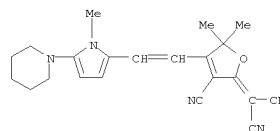


CM 2

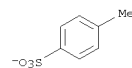


L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenesulfonic acid, 4-methyl-, compd. with
2-[3-cyano-5,5-dimethyl-4-[2-[1-methyl-5-(1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-2(5H)-Furanylidene]propanedinitrile, ion(1-) (1:1)
MF C22 H23 N5 O . C7 H7 O3 S

CM 1



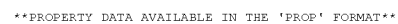
CM 2



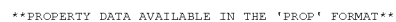
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C28 H28 N4 O



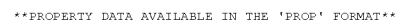
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2-hydroxyethyl)-4(1H)-
MF pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]-
C20 H18 N4 O2



L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-2(1H)-
MF pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanilydene]-
C23 H20 N4 O



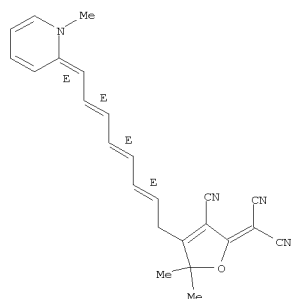
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-4(1H)-
pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanidene]-
MF C23 H20 N4 O



10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E,8E)-8-(1-methyl-
2(1H)-pyridinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furanlydene]-
MF C24 H22 N4 O

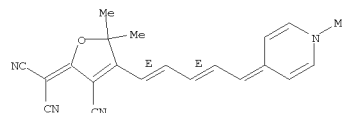
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

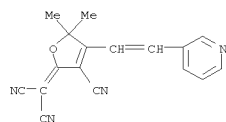
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-5-(1-methyl-4(1H)-
pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlydene]-
MF C21 H18 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

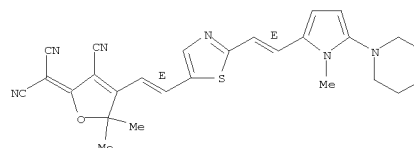
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(3-pyridinyl)ethenyl]-2(5H)-
furanlydene]-
MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[1-methyl-5-(
1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-
furanlydene]-
MF C27 H26 N6 O S

Double bond geometry as shown.

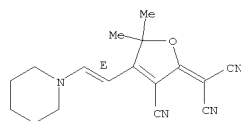


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

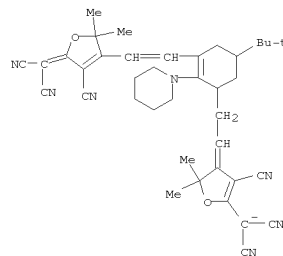
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(1-piperidinyl)ethenyl]-2(5H)-furylidene]-
MF C17 H18 N4 O
CI CCM

Double bond geometry as shown.

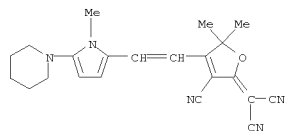


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[3-[2-[4-cyano-5-(dicyanomethyl)-2,2-dimethyl-3(2H)-furylidene]ethyl]-5-(1,1-dimethylethyl)-2-(1-piperidinyl)-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-, ion (1-)
MF C39 H42 N7 O2
CI CCM

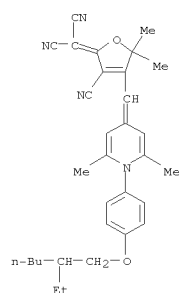


L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[2-[1-methyl-5-(1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-2(5H)-furylidene]-
MF C22 H23 N5 O
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

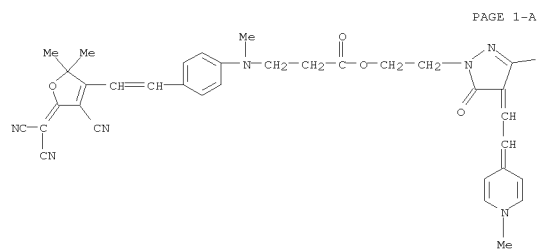
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C32 H36 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

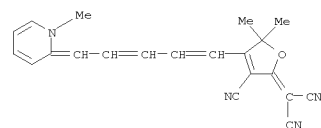
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN β -Alanine, N-[4-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]phenyl]-N-methyl-,
 2-[4,5-dihydro-4-[(1-methyl-4(1H)-pyridinylidene)ethylidene]-5-oxo-3-propyl-1H-pyrazol-1-yl]ethyl ester (9CI)
 MF C38 H39 N7 O4



Pr-n

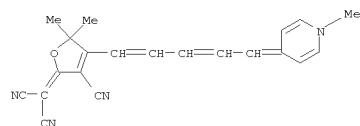
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-2(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]-
 MF C21 H18 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

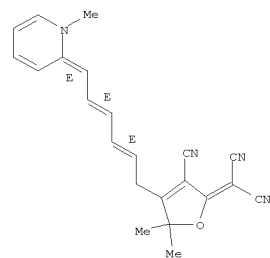
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-4(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]-
 MF C21 H18 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-6-(1-methyl-2(1H)-pyridinylidene)-2,4-hexadien-1-yl]-2(5H)-furanylidene]-
 MF C22 H20 N4 O

Double bond geometry as shown.

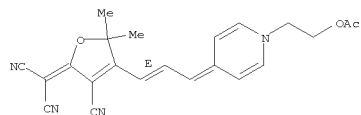


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

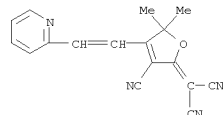
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-3-[1-[2-(acetyloxy)ethyl]-4(1H)-
 pyridinylidene]-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furan-
 MF C22 H20 N4 O3

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

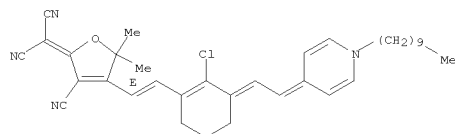
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-
 furan-ylidene]-
 MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[2-chloro-3-[2-(1-decyl-4(1H)-
 pyridinylidene)ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-
 2(5H)-furan-ylidene]-
 MF C35 H41 Cl N4 O

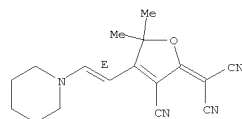
Double bond geometry as described by E or Z.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(1-
 piperidinyl)ethenyl]-2(5H)-furan-ylidene]-, hydrate (50:19)
 MF C17 H18 N4 O . 19/50 H2 O

Double bond geometry as shown.

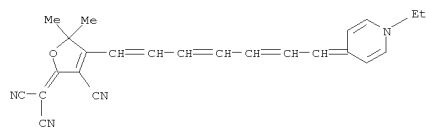


●19/50 H₂O

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

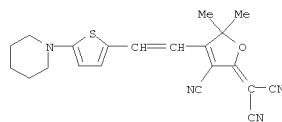
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[7-(1-ethyl-4(1H)-pyridinylidene)-1,3,5-
heptatrien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C24 H22 N4 O



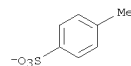
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzenesulfonic acid, 4-methyl-, compd. with
2-[3-cyano-5,5-dimethyl-4-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2(5H)-
furanlydene]propanedinitrile, ion(1-) (1:1)
MF C21 H20 N4 O S . C7 H7 O3 S

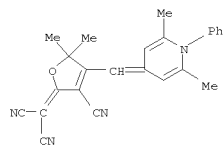
CM 1



CM 2

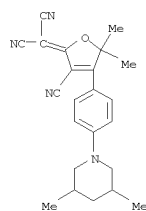


L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C24 H20 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

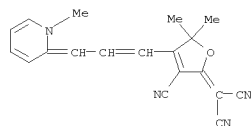
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[4-(3,5-dimethyl-1-piperidinyl)phenyl]-5,5-
dimethyl-2(5H)-furanlydene]-
MF C23 H24 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

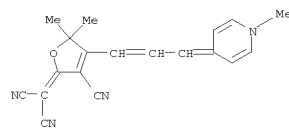
10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[3-(1-methyl-2(1H)-
pyridinylidene)-1-propen-1-yl]-2(5H)-furanlydene]-
MF C19 H16 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

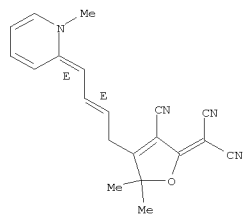
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[3-(1-methyl-4(1H)-
pyridinylidene)-1-propen-1-yl]-2(5H)-furanlydene]-
MF C19 H16 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E)-4-(1-methyl-2(1H)-
pyridinylidene)-2-buten-1-yl]-2(5H)-furanlydene]-
MF C20 H18 N4 O

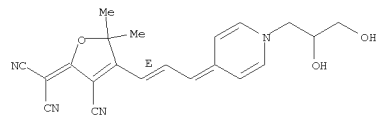
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C21 H20 N4 O3

Double bond geometry as shown.

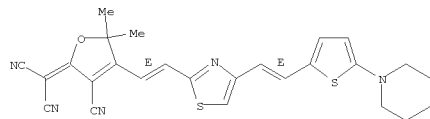


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

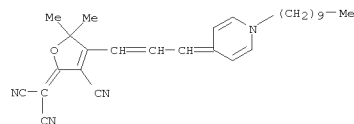
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[4-[(1E)-2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-2(5H)-furylidene]-
MF C26 H23 N5 O S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

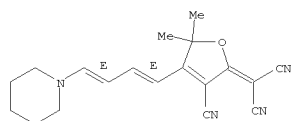
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[3-(1-decyl-4(1H)-pyridinylidene)-1-propen-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
MF C28 H34 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

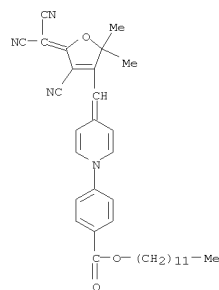
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(1-piperidinyl)-1,3-butadien-1-yl]-2(5H)-furylidene]-
MF C19 H20 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

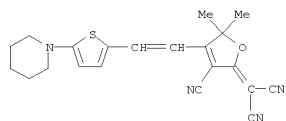
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C35 H40 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

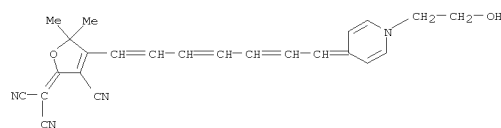
10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2(5H)-furanlydene]-
MF C21 H20 N4 O S
CI CCM



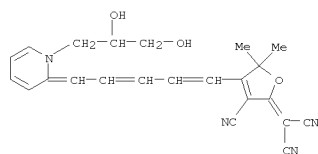
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[7-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]-1,3,5-heptatrien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C24 H22 N4 O2



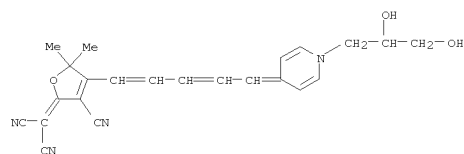
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C23 H22 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C23 H22 N4 O3

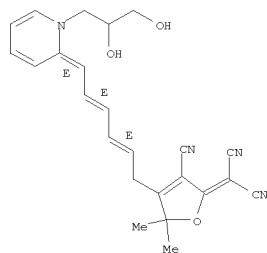


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-6-[1-(2,3-dihydroxypropyl)-
2(1H)-pyridinylidene]-2,4-hexadien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C24 H24 N4 O3

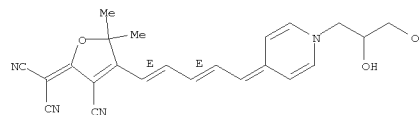
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-5-[1-(2,3-dihydroxypropyl)-4(1H)-
pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C23 H22 N4 O3

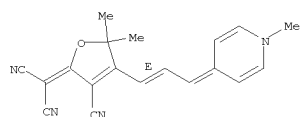
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-3-(1-methyl-4(1H)-
pyridinylidene)-1-propen-1-yl]-2(5H)-furanlydene]-
MF C19 H16 N4 O

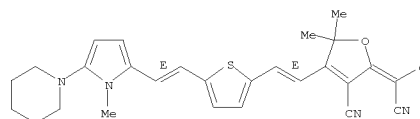
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[5-[(1E)-2-[1-methyl-5-(
1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-
furanlydene]-
MF C28 H27 N5 O S

Double bond geometry as shown.

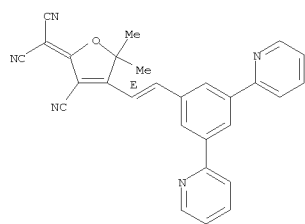


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[(1E)-2-(3,5-di-2-pyridinylphenyl)ethenyl]-
5,5-dimethyl-2(5H)-furanlidene]-
MF C28 H19 N5 O

Double bond geometry as shown.

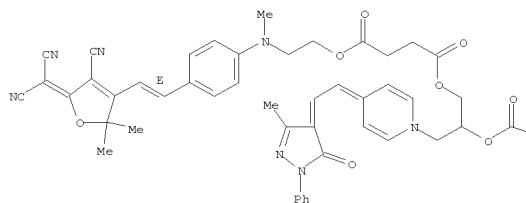


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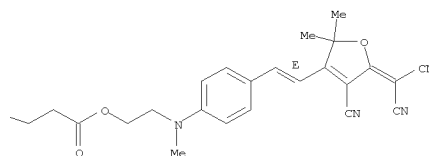
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Butanedioic acid, 1,1'-[1-[[4-[2-(1,5-dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)ethylidene]-1(4H)-pyridinyl]methyl]-1,2-ethanediyl] 4,4'-bis[2-[[4-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]phenyl]methylanino]ethyl] ester
MF C70 H65 N11 O11

Double bond geometry as described by E or Z.

PAGE 1-A

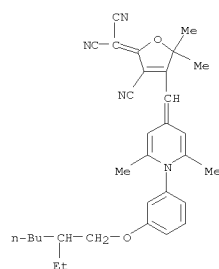


PAGE 1-B



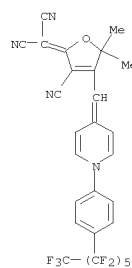
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C32 H36 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

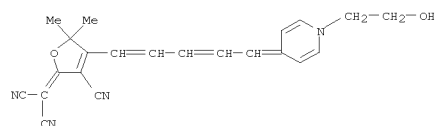
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C28 H15 F13 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

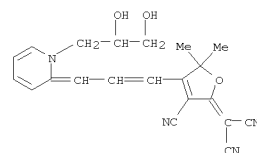
10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2-hydroxyethyl)-4(1H)-
pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furan-ylidene]-
MF C22 H20 N4 O2



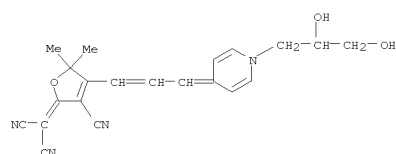
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-2(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furan-ylidene]-
MF C21 H20 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

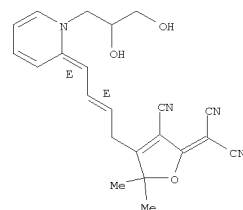
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-4(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furan-ylidene]-
MF C21 H20 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[1-(2,3-dihydroxypropyl)-2(1H)-
pyridinylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furan-ylidene]-
MF C22 H22 N4 O3

Double bond geometry as shown.

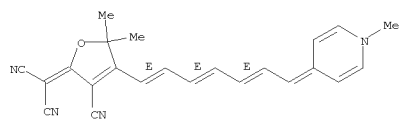


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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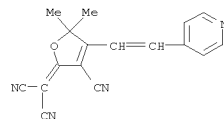
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-7-(1-methyl-4(1H)-
pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlydene]-
MF C23 H20 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(4-pyridinyl)ethenyl]-2(5H)-
furanlydene]-
MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

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(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

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L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

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L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010

L29 90 S L27

L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010

L32 6 S L31

L33 19 S L32 OR L30

L34 4286 S MEROCYANINE

L35 91 S L34 AND REVIEW/DT

L36 0 S L35 AND FURNA

L37 0 S L35 AND FURAN

L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010

L39 STRUCTURE UPLOADED

L40 50 S L39

L41 947 S L39 FULL

L42 54 S L41 AND C5N/RF

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010

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USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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substance identification.

=> s 142

L43 20 L42

=> d cbib abs hitstr 1-

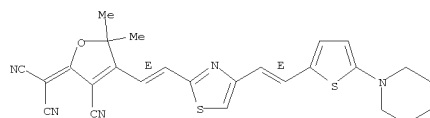
YOU HAVE REQUESTED DATA FROM 20 ANSWERS - CONTINUE? Y/(N):y

10560670.trn

L43 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2010:304297 Document No. 152:556918 Toward highly efficient NLO
 chromophores: Synthesis and properties of heterocycle-based
 electronically
 gradient dipolar NLO chromophores. Ma, Xiaohua; Ma, Fei; Zhao, Zhenhua;
 Song, Naiheng; Zhang, Jianping (Beijing National Laboratory for Molecular
 Sciences, Key Laboratory of Polymer Chemistry and Physics of Ministry of
 Education, Department of Polymer Science and Engineering, College of
 Chemistry and Molecular Engineering, Peking University, Beijing, 100871,
 Peop. Rep. China). Journal of Materials Chemistry, 20(12), 2369-2380
 (English) 2010. CODEN: JMACEP. ISSN: 0959-9428. Publisher: Royal
 Society of Chemistry.
 AB To realize organic nonlinear optical (NLO) chromophores with optimized
 ground-state polarization and very large mol. optical nonlinearities, a
 novel series of heterocycle-based electronically gradient dipolar
 chromophores were designed and synthesized. These chromophores are
 featured by their same strong electron acceptor (i.e.,
 2-dicyanomethylene-3-cyano-4,5,5-trimethyl-2,5-dihydrofuran, TCF) and the
 same length of π -conjugation, but different electron donors (e.g.,
 diethylamine and dianisylamine), different (hetero)aroms. with varying
 electron densities (i.e., pyrrole, thiophene, and benzene) as the
 auxiliary donor, and electron-poor 1,3-heteroarom. thiazole with
 different
 regiostructures (e.g., either electron-poor C2, "matched", or
 electron-rich C5, "un-matched", is connected to the acceptor) as the
 auxiliary acceptor, which allows for a systematic fine-tuning of the
 ground-state polarization. The gradient electronic structures and
 optical
 properties of these NLO chromophores were carefully characterized by ¹H
 NMR, CV, UV-vis, and Hyper-Rayleigh scattering expts. All the NLO
 chromophores exhibited very large static mol. first hyperpolarizabilities
 (β_0) in the range of 450-960 + 10-30 esu, which showed
 significant dependence on the gradient electronic structures. Upon using
 electron-rich heteroarom. cycle as the auxiliary donor, "matched"
 thiazole
 as the auxiliary acceptor, and/or dianisylamine as the electron donor,
 substantially enhanced β were obtained. Theor. studies were carried
 out to understand the structure-property relationships, which showed that
 multiple states excitations contributed to the β values of this
 series of NLO chromophores. TGA investigations showed excellent thermal
 stability for most of the resulting NLO chromophores, with on-set temps.
 for thermal decomposition higher than 250 °C. The very large β_0
 values coupled with the high thermal stability indicates good application
 potential of this series of NLO chromophores.
 IT 1225601-90-0P 1225601-91-1P 1225601-92-2P
 1225601-98-8P
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 SPN
 (Synthetic preparation); TEM (Technical or engineered material use); PREP
 (Preparation); PROC (Process); USES (Uses)
 (toward highly efficient NLO chromophores and synthesis and properties
 of heterocycle-based electronically gradient dipolar NLO chromophores)
 RN 1225601-90-0 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[1-methyl-5-
 (1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-

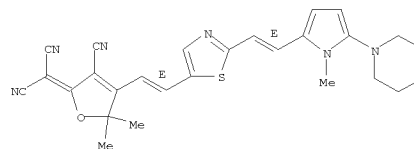
L43 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[4-[(1E)-2-[5-(1-
 piperidinyl)-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-2(5H)-furanlylidene]-
 (CA INDEX NAME)

Double bond geometry as shown.



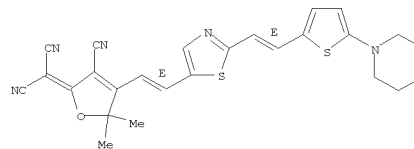
L43 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



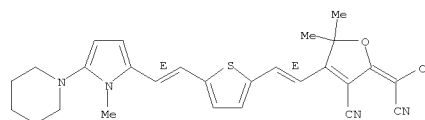
RN 1225601-91-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[5-(1-
 piperidinyl)-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-furanlylidene]-
 (CA INDEX NAME)

Double bond geometry as shown.



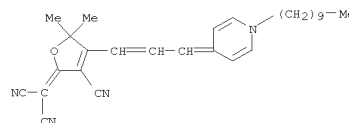
RN 1225601-92-2 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[5-[(1E)-2-[1-methyl-5-
 (1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-
 furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 1225601-98-8 CAPLUS

L43 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2009:728784 Document No. 151:256964 The effects of oxygen concentration and
 light intensity on the photostability of zwitterionic chromophores.
 Raymond, S. G.; Williams, G. V. M.; Lochocki, B.; Bhuiyan, M. D. H.; Kay,
 A. J.; Quilty, J. W. (Photonics Group, Industrial Research Ltd., Lower
 Hutt, 5040, N. Z.). Journal of Applied Physics, 105(11),
 113123/1-113123/7 (English) 2009. CODEN: JAPIAU. ISSN: 0021-8979.
 Publisher: American Institute of Physics.
 AB Photostability measurements at different oxygen partial pressures and
 light intensities have been made on host-guest films containing amorphous
 polycarbonate and an organic chromophore with a high second order
 nonlinear
 optical figure of merit. The authors find that the photodegradn. quantum
 efficiency dramatically increases with increasing oxygen partial
 pressure.
 At very low oxygen partial pressures (8 + 10⁻⁶ bar) the average number of
 photons required to photodegrade a chromophore is as high as 2 + 108
 at 655 nm. The photodegradn. quantum efficiency in air is observed to
 decrease with increasing optical intensity. The authors show that this
 is
 due to a reduced oxygen content in the film caused by chromophore
 photodegradn. rather than ground state bleaching. There is an anomalous
 increase and then decrease in the photoluminescence intensity that cannot
 easily be explained. (c) 2009 American Institute of Physics.
 IT 1178886-26-4
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 RCT
 (Reactant); PROC (Process); RACT (Reactant or reagent)
 (effects of oxygen concentration and light intensity on
 photostability of
 zwitterionic chromophores in host-guest films containing amorphous
 poly(carbonate))
 RN 1178886-26-4 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-4-[3-(1-decyl-4(1H)-pyridinylidene)-1-propen-
 1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



CCCC(=O)OCCN(C)c1ccc(cc1)/C=C/C2=C(C#N)C(=C(C#N)C2)C3(C)OC(C)C3

10560670.trn

L43 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2009:98768 Document No. 152:487904 Strategies for optimizing the second-order nonlinear optical response in zwitterionic merocyanine dyes. Teshome, Ayele; Kay, Andrew J.; Woolhouse, Anthony D.; Clays, Koen; Asselberghs, Inge; Smith, Gerald J. (Department of Chemistry, University of Leuven, Louvain, B-3001, Belg.). Optical Materials (Amsterdam, Netherlands), 31(4), 575-582 (English) 2009. CODEN: CMATET. ISSN: 0925-3467. Publisher: Elsevier B.V..

AB The mol. linear and nonlinear optical (NLO) properties of a series of seven merocyanine dyes have been studied in solvents covering a broad range of polarity (dioxane to dimethylsulfoxide). The benchmark for the series was the "Right hand side" zwitterionic chromophore 1, with a short conjugation path and 4-pyridinylidene as the donor group. Optimization strategies to improve the nonlinear response involved an extension of the conjugation path (with one or two ethenyl groups), annelation (pyridine

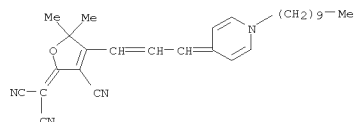
to quinoline), variation of the solvent polarity and partial ring locking of the π -conjugated system. All chromophores have as the acceptor moiety the cyanodicyanomethylidenedihydrofuran heterocycle. Optimizing the NLO response of these zwitterionic dyes by decreasing the polarity of the solvent is only possible for the parent chromophore 1. This is because the three other successful strategies employed to further improve the second-order NLO response in polar media, result in detrimental aggregation in nonpolar media.

IT 1178886-26-4P 1222190-29-5P
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(strategies for optimizing second-order nonlinear optical response in zwitterionic merocyanine dyes)

RN 1178886-26-4 CAPLUS

CN Propanedinitrile,
2-[3-cyano-4-[3-(1-decyl-4(1H)-pyridinylidene)-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)



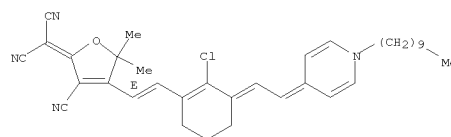
RN 1222190-29-5 CAPLUS

CN Propanedinitrile, 2-[4-[(1E)-2-[2-chloro-3-[2-(1-decyl-4(1H)-

pyridinylidene)ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

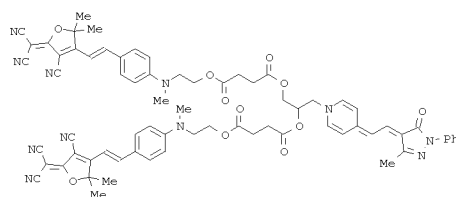
Double bond geometry as described by E or Z.

L43 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L43 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2008:1169221 Document No. 149:4714710 Process for preparation of second-order nonlinear optical chromophore compound. Qian, Guodong; Gao, Junkuo; Cui, Yuanjing; Chen, Lujian; Jin, Xuefeng; Wang, Zhiyu; Fan, Xianping; Wang, Minquan (Zhejiang University, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 101270116 A 20080924, 9pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2010-61316 20080422.

GI



AB This invention provides a process for the preparation of I, composed of two neutral chromophores and one amphoteric ionic chromophore via covalent bonds, as second-order nonlinear optical material. For example, 4-[(2-hydroxyethyl)(methylamino)benzaldehyde was reacted with 3-cyano-2-dicyanomethylene-4,5,5-trimethyl-2,5-dihydrofuran, followed by addition of succinic anhydride and 4-[[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]ethylidene]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one (preparation given) to give I in moderate yield. I has high hyperpolarization

rate, small dipole moment, and high pyrolysis temperature

IT 1070879-12-7P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of second-order nonlinear optical compound)

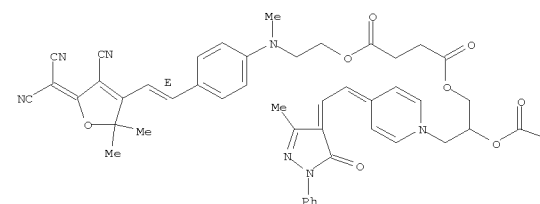
RN 1070879-12-7 CAPLUS

CN Butanedioic acid, 1,1'-[1-[[4-[2-(1,5-dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)ethylidene]-1(4H)-pyridinyl)methyl]-1,2-ethanediyl]4,4'-bis[2-[[4-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanly]ethenyl]phenyl)methylamino]ethyl] ester (CA INDEX NAME)

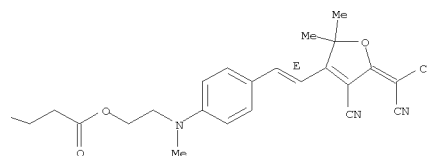
Double bond geometry as described by E or Z.

L43 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



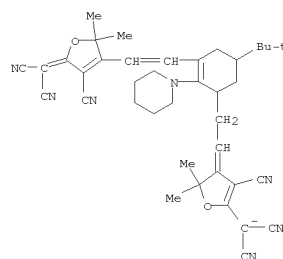
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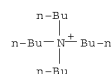
10560670.trn

L43 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:1096944 Document No. 149:4498010 Stable near-infrared anionic
 polymethine dyes: Structure, photophysical, and redox properties. Bouit,
 Pierre-Antoine; Di Piazza, Emmanuel; Rigaut, Stephane; Le Guennic, Boris;
 Aronica, Christophe; Toupet, Loic; Andraud, Chantal; Maury, Olivier
 (Laboratoire de Chimie, UMR 5182 CNRS, University of Lyon, Ecole Normale
 Supérieure de Lyon, Lyon, 69007, Fr.). Organic Letters, 10(19),
 4159-4162
 (English) 2008. CODEN: ORLEF7. ISSN: 1523-7060. OTHER SOURCES:
 CASREACT
 149:449801. Publisher: American Chemical Society.
 AB The concept of cyanine has been successfully extended to an anionic
 heptamethine dye featuring tricyanofuran moieties in terms of structure,
 reactivity, and photophys. properties. Importantly, absorption and
 emission are red-shifted compared to its classical cationic analog
 without
 any cost in terms of thermal stability. In addition to its "cyanine"
 behavior, this mol. exhibits further redox properties: oxidation and
 reduction
 led to the reversible formation of radical species whose absorption is in
 marked contrast with that of cyanines.
 IT 1068018-35-8P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (blue dye; preparation and properties of stable near-IR anionic
 polymethine
 dyes)
 RN 1068018-35-8 CAPLUS
 CN 1-Butanaminium, N,N,N-tributyl-, salt with
 2-[4-[2-[3-[2-[4-cyano-5-(dicyanomethyl)-2,2-dimethyl-3(2H)-
 furanylidene]ethyl]-5-(1,1-dimethylethyl)-2-(1-piperidinyl)-1-cyclohexen-1-
 yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]propanedinitrile
 (1:1)
 (CA INDEX NAME)
 CM 1
 CRN 1068018-34-7
 CMF C39 H42 N7 O2

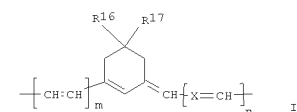
L43 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



CM 2
 CRN 10549-76-5
 CMF C16 H36 N

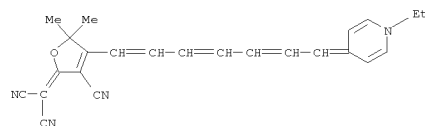


L43 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:1010609 Document No. 149:2785450 Organic nonlinear optical material of
 nitrogen-containing heterocyclic compound, formation of nonlinear optical
 polymer film, and optical modulator. Kawamozzen, Yoshihiro (Toshiba
 Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2008191499 A 20080821, 44pp.
 (Japanese). CODEN: JKKXAF. APPLICATION: JP 2007-27120 20070206.
 GI



AB The optical material is represented by $\Phi-\Psi-A$ [A =
 (un)substituted 5(4H)-oxazolone-4-ylidene=methyl,
 5(4H)-thiazolone-4-ylidene=methyl, 5(4H)-imidazolone-4-ylidene=methyl,
 2(3H)-furanon-3-ylidene=methyl, 3-(dicyanomethylene)-1-indanon-2-
 ylidene=methyl,
 3-(dicyanomethylene)-2,3-dihydro-1,1-dioxidebenzothiophen-
 2-ylidene=methyl, 3-cyano-2-(dicyanomethylene)-2,4-dihydrofuran-4-yl,
 1-(dicyanomethylene)inden-3-yl, 2-(tricyanovinyl)-5-thienyl,
 2-(7,8,8-tricyanoquinodimethan-7-yl)-5-thienyl,
 5-(tricyanovinyl)-2,2'-bithiophen-5'-yl,
 5-(7,8,8-tricyanoquinodimethan-7-yl)-2,2'-bithiophen-5'-yl; Φ =
 (un)substituted 3-alkyl-2(3H)-benzothiazolylidene=methyl,
 3-alkyl-2(3H)-benzoxazolylidene=methyl,
 1,3-dialkyl-1,3-dihydro-2-benzimidazolylidene=methyl,
 1-alkyl-2(3H)-indolylidene=methyl, 1-alkyl-2(1H)-pyridinylidene=methyl,
 1-alkyl-4(1H)-pyridinylidene=methyl, 1-aryl-4(1H)-pyridinylidene=methyl,
 1-alkyl-2(1H)-quinolinylidene=methyl,
 1-alkyl-4(1H)-quinolinylidene=methyl,
 1-aryl-4(1H)-quinolinylidene=methyl,
 etc.; Ψ = (CH:CH)k, k = 1; X = S, O, NR18R20, CR19R20; R16-R20 =
 (un)substituted aromatic, heterocyclic, aliphatic, alicyclic, H; k =
 1-10; m, n
 = 0-5]. The film is formed by dissolving the optical material and a
 matrix in a solvent, applying the solution on a substrate, heating the
 resulting film at a primary temperature to remove the solvent and give a
 polymer
 film, and heating the polymer film at a secondary temperature higher
 than the
 primary temperature for poling. The optical modulator has a nonlinear
 optical
 region made of a nonlinear optical polymer film, a pair of electrodes
 sandwiching the region, a light injector to the region, and a light
 receiver for the light emitted from the region, wherein the polymer film
 contains a base polymer and the above nonlinear optical material. The
 nonlinear optical material shows high heat resistance.
 IT 1045854-34-9P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (organic nonlinear optical material of N-containing heterocyclic
 compound for

L43 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 formation of nonlinear optical polymer film used in optical modulator)
 RN 1045854-34-9 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[7-(1-ethyl-4(1H)-pyridinylidene)-1,3,5-
 heptatrien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



10560670.trn

L43 ANSWER 9 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2008:423751 Document No. 150:504049 Geometry and bond-length alternation in nonlinear optical materials. II. Effects of donor strength in two push-pull molecules. Gainsford, Graeme J.; Bhuiyan, M. Delower H.; Kay, Andrew J. (Industrial Research Limited, Lower Hutt, 31-310, N. Z.). Acta Crystallographica, Section C: Crystal Structure Communications, C64(4), o195-o198 (English) 2008. CODEN: ACSCEE. ISSN: 0108-2701. Publisher: Blackwell Publishing Ltd..

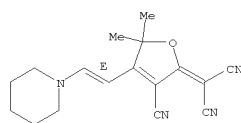
AB The compds.
N-[2-(4-cyano-5-dicyanomethylene-2,2-dimethyl-2,5-dihydrofuran-3-yl)vinyl]-N-phenylacetamide, C20H16N4O2, (I), and 2-(3-cyano-5,5-dimethyl-4-[2-(piperidin-1-yl)vinyl]-2,5-dihydrofuran-2-ylidene)malononitrile 0.376-hydrate, C17H18N4O·0.376H2O, (II), are novel push-pull mol's. Crystallog. data are given. The significant bonding changes in the polyene chain compared with the parent mol. 2-dicyanomethylene-4,5,5-trimethyl-2,5-dihydrofuran-3-carbonitrile are consistent with the relative electron-donating properties of the acetanilido and piperidine groups. The packing of (I) uses one phenyl-cyano C-H...N and two phenyl-carbonyl C-H...O H bonds. (II) crystallizes with a partial H2O mol. (0.376H2O), consistent with cell packing that is dominated by attractive C-H...N(cyano) interactions. These compds. are precursors to novel nonlinear optical chromophores, studied

to assess the impact of donor strength and the extent of conjugation on bond-length alternation, crystal packing and aggregation.

IT 1149054-01-2
RL: PRP (Properties)
(crystal structure of)

RN 1149054-01-2 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(1-piperidinyl)ethenyl]-2(5H)-furanlydene]-, hydrate (50:19) (CA INDEX NAME)

Double bond geometry as shown.



●19/50 H₂O

L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2008:420767 Document No. 148:562620 Synthesis and properties of novel second-order NLO chromophores containing pyrrole as an auxiliary electron donor. Ma, Xiaohua; Liang, Ran; Yang, Fan; Zhao, Zhenhua; Zhang, Aixin; Song, Naiheng; Zhou, Qifeng; Zhang, Jianping (Beijing National Laboratory for Molecular Sciences, Key Laboratory of Polymer Chemistry and Physics of Ministry of Education, Department of Polymer Science and Engineering, College of Chemistry and Molecular Engineering, Peking University, Beijing, 100871, Peop. Rep. China). Journal of Materials Chemistry, 18(15), 1756-1764 (English) 2008. CODEN: JMACEP. ISSN: 0959-9428. Publisher: Royal Society of Chemistry.

AB A novel series of second-order NLO chromophores containing pyrrole as an auxiliary electron donor was synthesized via Knoevenagel reactions between 5-aminated N-methylpyrrole-2-carbaldehydes and different electron-accepting groups, i.e., malononitrile, picolinium tosylate and 2-dicyanomethylene-3-cyano-4,5,5-trimethyl-2,5-dihydrofuran (TCF). Their corresponding NLO chromophores containing thiophene in the place of pyrrole

were also prepared for comparison. The resulting NLO chromophores showed good solubility in common organic solvents such as CHCl₃, THF and DMF, except for

TTCF containing thiophene and TCF, which is soluble in polar aprotic solvents but poorly soluble in less polar solvents. NMR studies of these chromophores showed that, in comparison with thiophene rings in the same type of NLO chromophores, pyrrole rings had higher electron d., as evidenced by the up-field chemical shifts of pyrrole protons. TGA investigations showed

good thermal stability of these chromophores in nitrogen with the onset weight loss temps. in the range of 203 to 296 °C. Pos. solvatochromism of 10-44 nm from dioxane to chloroform were found for these chromophores, and

moderate to very large mol. static hyperpolarizabilities (β₀) of 57-1490 + 10-30 esu were revealed by hyper-Rayleigh scattering measurements. For chemical bonding to polymer chains, hydroxyl-containing NLO chromophores were also prepared and characterized for their linear and nonlinear optical properties.

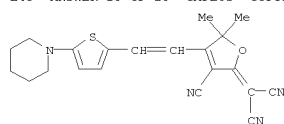
IT 1026774-81-1P 1026774-83-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and properties of novel second-order NLO chromophores containing pyrrole as auxiliary electron donor)

RN 1026774-81-1 CAPLUS
CN Benzenesulfonic acid, 4-methyl-, compd. with 2-[3-cyano-5,5-dimethyl-4-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2(5H)-furanlydene]propanedinitrile, ion(1-) (1:1) (CA INDEX NAME)

CM 1

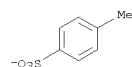
CRN 1026774-80-0
CMF C21 H20 N4 O S

L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



CM 2

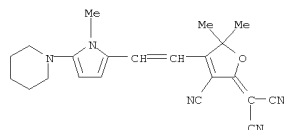
CRN 16722-51-3
CMF C7 H7 O3 S



RN 1026774-83-3 CAPLUS
CN Benzenesulfonic acid, 4-methyl-, compd. with 2-[3-cyano-5,5-dimethyl-4-[2-[1-methyl-5-(1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-2(5H)-furanlydene]propanedinitrile, ion(1-) (1:1) (CA INDEX NAME)

CM 1

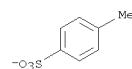
CRN 1026774-82-2
CMF C22 H23 N5 O



CM 2

CRN 16722-51-3
CMF C7 H7 O3 S

L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



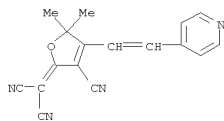
L43 ANSWER 11 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:285086 Document No. 148:347284 Prediction of an agent's or agents' activity across different cells and tissue types. Theodorescu, Dan; Lee, Jae Kyun (USA). PCT Int. Appl. WO 2008027912 A2 20080306, 124pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR,

BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, SZ, TJ, TM, TN, TR, TT, TZ, RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, MT, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PXXD2. APPLICATION: WO 2007-US77022 20070828. PRIORITY: US 2006-840644P 20060828; US 2006-840834P 20061122.

AB The present invention relates to a novel algorithm that uses mol. profile signatures to extrapolate the physiol. processes of one type of cell set (e.g., cell line, tissue, normal or diseased) to predict the activity of an agent or agents against another type of cell set that has never been exposed to the agent in question (drug efficacy prediction). The novel algorithm also allows one to predict the therapeutic response of a patient to a therapeutic regimen even though the patient (or patients) may have never been exposed to that agent before, thereby allowing for selecting a therapeutic agent or combination of agents that would best suit the patient (i.e., personalized medicine). The present invention also relates

to methods of using the agents identified by the novel algorithm to treat a variety of diseases, including cancer.
 IT 171082-39-6, NSC 686342
 RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (prediction of an agent's or agents' activity across different cells and tissue types for treatment of diseases such as cancer)

RN 171082-39-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2-(4-pyridinyl)ethenyl)-2(5H)-furanlydene]- (CA INDEX NAME)



L43 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2007:828339 Document No. 147:364975 Predicting nonlinear optical properties in push-pull molecules based on methyl pyridinium donor and 3-cyano-5,5-dimethyl-2(5H)-furanlydene-propanedinitrile acceptor units using vibrational spectroscopy and density functional theory. McGovern, Cushla M.; Walsh, Timothy J.; Gordon, Keith C.; Kay, Andrew J.; Woolhouse, Anthony D. (Department of Chemistry, MacDiarmid Institute for Advanced Materials and Nanotechnology, University of Otago, Dunedin, N. Z.). Chemical Physics Letters, 443(4-6), 298-303 (English) 2007. CODEN: CHPLBC. ISSN: 0009-2614. Publisher: Elsevier B.V..

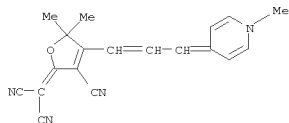
AB The exptl. Raman, electronic absorption and hyperpolarizability (β 0) data are compared to the calculated parameters for three potential nonlinear optical materials based on Me pyridinium donor and 3-cyano-5,5-dimethyl-2(5H)-furanlydene-propanedinitrile acceptor units linked by a π -chain of 3, 5 and 7 carbon atoms. Using a B3LYP functional with the 6-31G(d) basis set we obtain predictions of the β 0 values within 20% of those observed in experiment The inclusion of solvent in the calcms. does not improve the prediction - indeed it becomes

worse. This poorer performance is also reflected in the poorer correlation between calculated and exptl. Raman spectra and electronic absorption spectra.

IT 814264-61-4 814264-62-5 814264-63-6
 RL: PRP (Properties) (predicting nonlinear optical properties in push-pull mols. based on

pyridinium donor and 3-cyano-5,5-dimethyl-2(5H)-furanlydene-propanedinitrile acceptor units using vibrational spectroscopy and d. functional theory)

RN 814264-61-4 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[3-(1-methyl-4(1H)-pyridinylidene)-1-propen-1-yl]-2(5H)-furanlydene]- (CA INDEX NAME)



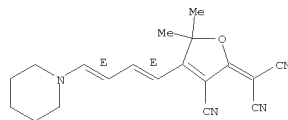
RN 814264-62-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-4(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlydene]- (CA INDEX NAME)

L43 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:148957 Document No. 150:1803140 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)buta-1,3-dienyl]-2,5-dihydrofuran-2-ylidene]malononitrile. Gainsford, Graeme J.; Bhuiyan, M. Delower H.; Kay, Andrew J.; Spek, Anthony L. (Industrial Research Limited, Lower Hutt, N. Z.). Acta Crystallographica, Section E: Structure Reports Online, E64(2), o503, o503/1-o503/11 (English) 2008. CODEN: ACSEBH. ISSN: 1600-5368. URL: <http://journals.iucr.org/e/issues/2008/02/00/gg3141> /gg3141.pdf OTHER SOURCES: CASREACT 150:180314. Publisher: Blackwell Publishing Ltd..

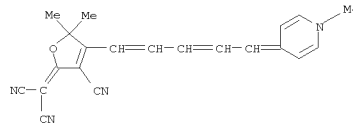
AB 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)buta-1,3-dienyl]-2,5-dihydrofuran-2-ylidene]malononitrile, C19H20N4O, crystallizes as twinned crystals containing 2 independent mols. which pack into a 3-dimensional matrix via several C-H...N(cyano) interactions, with C...N ranging 3.324(8)-3.568(8) Å and C-H...N angles of 147-166°. Crystallog. data are given.

IT 1105024-87-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal and mol. structure of)
 RN 1105024-87-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-(1-piperidinyl)-1,3-butadien-1-yl]-2(5H)-furanlydene]- (CA INDEX NAME)

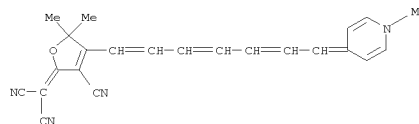
Double bond geometry as shown.



L43 ANSWER 13 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 814264-63-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-4(1H)-pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlydene]- (CA INDEX NAME)



L43 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:427381 Document No. 145:1127650 Antiparallel-Aligned
 Neutral-Ground-State and Zwitterionic Chromophores as a Nonlinear Optical
 Material. Liao, Yi; Bhattacharjee, Sanchali; Firestone, Kimberly A.;
 Eichinger, Bruce E.; Paranjli, Rajan; Anderson, Cyrus A.; Robinson, Bruce
 H.; Reid, Philip J.; Dalton, Larry R. (Department of Chemistry,
 University
 of Washington, Seattle, WA, 98195, USA). Journal of the American
 Chemical
 Society, 128(21), 6847-6853 (English) 2006. CODEN: JACSAT. ISSN:
 0002-7863. OTHER SOURCES: CASREACT 145:112765. Publisher: American
 Chemical Society.

AB Efficient noncentrosym. arrangement of nonlinear optical (NLO)
 chromophores with high 1st-order hyperpolarizability (β) for
 increased electrooptical (EO) efficiency proved challenging as strong
 dipolar interactions between the chromophores encourage antiparallel
 alignment, attenuating the macroscopic EO effect. This work explores a
 novel approach to simultaneously achieve large β values while
 providing an adjustable dipole moment by linking a strong
 neutral-ground-state (NGS) NLO chromophore with pos. β to a
 zwitterionic (ZWI) chromophore with neg. β in an antiparallel
 fashion. Probably the overall β of such a structure will should be
 the sum of the absolute values of the two types of chromophores while the
 dipole moment will be the difference. Mols. 1-3 were synthesized to test
 the feasibility of this approach. Mol. dynamics calcs. and NMR data
 supported that the NGS chromophore component and the ZWI chromophore
 component self-assemble to an antiparallel conformation in CHCl₃.

Calcs. showed that the dipole moment of 1 is close to the difference of the two
 component chromophores. Hyper-Rayleigh scattering (HRS) studies
 confirmed

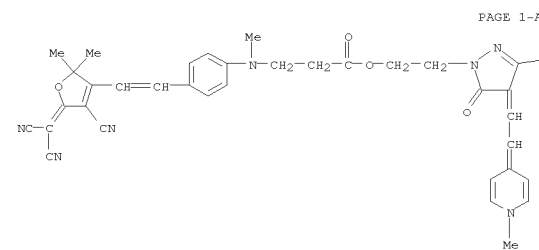
that the 1st hyperpolarizability of 1 is close to the sum of the two
 component chromophores. These results support the idea that an
 antiparallel-aligned neutral-ground-state chromophore and a zwitterionic
 chromophore can simultaneously achieve an increase in β and a
 decrease of the dipole moment.

IT 89551-99-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (antiparallel-aligned neutral-ground-state and zwitterionic
 chromophores as a nonlinear optical material)

RN 89551-99-2 CAPLUS

CN β -Alanine, N-[4-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-
 dimethyl-3-furanyl]ethenyl]phenyl]-N-methyl-,
 2-[4,5-dihydro-4-[(1-methyl-4(1H)-pyridinylidene)ethylidene]-5-oxo-3-
 propyl-1H-pyrazol-1-yl]ethyl ester (9CI) (CA INDEX NAME)

L43 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



PAGE 1-B

Pr-n

L43 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:253983 Document No. 145:513687 The effects of molecular aggregation
 and

isomerization on the fluorescence of "push-pull" hyperpolarizable
 chromophores. Smith, Gerald J.; Dunford, Cara L.; Kay, Andrew J.;
 Woolhouse, Anthony D. (Industrial Research Ltd., Lower Hutt, 31310, N.
 Z.). Journal of Photochemistry and Photobiology, A: Chemistry, 179(3),
 237-242 (English) 2006. CODEN: JPPEJ. ISSN: 1010-6030. Publisher:
 Elsevier B.V..

AB Hyperpolarizable organic mols. are attracting interest for use in
 nonlinear

optical devices. Some zwitterionic merocyanine chromophores with
 exceptionally high first hyperpolarizabilities have been synthesized that
 possess an electron donor moiety coupled to an electron acceptor through

a conjugated double bond system. Aligned arrays of these mols. tethered to
 a polyurethane backbone and spun onto a substrate to form a thin film,
 respond to the application of external elec. fields with changes to their
 refractive indexes, i.e. the electro-optic effect. This behavior can be
 capitalized upon to fabricate optical switches and modulators. High
 concns., or loadings, of these nonlinear optical mols. in thin films are
 required to produce a usable electro-optic effect, ca. 0.1-0.5 mol L⁻¹,
 and this promotes mol. aggregation which alters their polarizabilities

and also has implications for their photostabilities. The fluorescence
 spectra of these mols. in polymer films at ambient temperature and in
 solution in a

9:1 ethanol-water mixture over a range of temps. down to 80 K show a
 substantial blue shift as the temperature is lowered. This is
 attributed to a

reduction in the solvating power of the solvent as it becomes

increasingly more viscous at lower temps. At the lowest temps. studied a shoulder on
 the lower energy side of the fluorescence spectral distribution is
 apparent which is ascribed to the formation of antiparallel
 dimers/aggregates; a consequence of the highly dipolar character of these
 mols. In addition, dual fluorescence is observed in high viscosity
 environments

suggesting the involvement of twisting about the bridging conjugated bond
 system that links the electron donor to the electron acceptor.

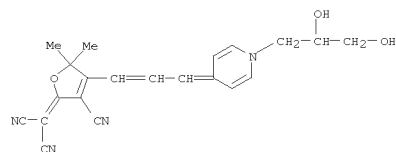
IT 814264-64-7
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)

(effects of mol. aggregation and isomerization on fluorescence of
 push-pull hyperpolarizable chromophores)

RN 814264-64-7 CAPLUS

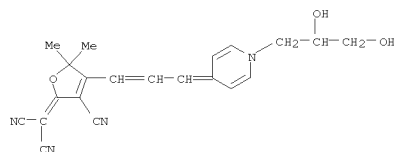
CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-4(1H)-
 pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA
 INDEX NAME)

L43 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



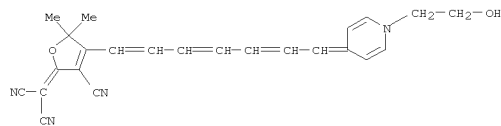
10560670.trn

L43 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN
 2005:1322081 Document No. 145:3787400 Synthesis of a new series of 'RHS' chromophores and NLO polymers. Beaudin, Andrew M. R.; Kay, Andrew J.; Woolhouse, Anthony D. (Opto-Organics Group, Industrial Research Ltd., Lower Hutt, N. Z.). Proceedings of SPIE-The International Society for Optical Engineering, 5971 (Photonic Applications in Nonlinear Optics, Nanophotonics and Microwave Photonics), 59710I/1-59710I/10 (English) 2005.
 CODEN: PSISDG. ISSN: 0277-786X. OTHER SOURCES: CASREACT 145:378740. Publisher: SPIE-The International Society for Optical Engineering.
 AB A series of right-hand-side (RHS) hydroxy functionalized merocyanines containing a powerful cyanodicyanomethylidenedihydrofuran electron acceptor has been designed and synthesized. Using the "build up" approach to synthesis, variations in both the donor moiety and conjugation length of these zwitterionic systems are possible, thereby giving rise to a suite of chromophores. Hyper-Raleigh scattering has confirmed that the highly conjugated chromophores have large first hyperpolarizabilities (β_0) - values that are of a similar magnitude to many of those reported for "bench mark" left-hand-side systems. The hydroxy functionalized chromophores were successfully grafted at various loadings onto a series of recently developed carboxylic acid containing polyetherimides.
 IT 814264-64-7P 814264-65-8P 910999-68-7P
 910999-69-8P 910999-70-1P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chromophore; synthesis and characterization of right-hand-side chromophores and NLO polyimides containing them)
 RN 814264-64-7 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

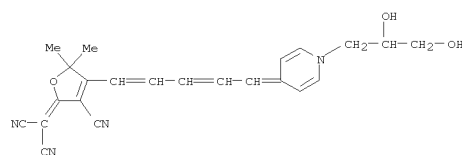


RN 814264-65-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

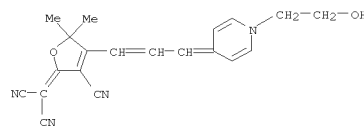
L43 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)



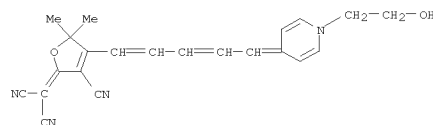
L43 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)



RN 910999-68-7 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

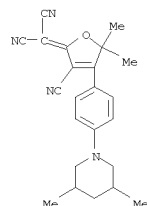


RN 910999-69-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



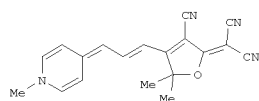
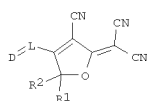
RN 910999-70-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[7-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]-1,3,5-heptatrien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

L43 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN
 2005:34510 Document No. 142:1160140 Fluorophore compounds and their use in labeling biomolecules and biological structures. Moerner, William E.; Twieg, Robert J.; Kline, Douglas W.; He, Meng (Stanford University, USA).
 U.S. Pat. Appl. Publ. US 20050009109 A1 20050113, 44 pp. (English).
 CODEN: USXXCO. APPLICATION: US 2003-604282 20030708.
 AB Fluorophore compds. and methods for their use are disclosed. The fluorophores contain a 2-dicyanomethylen-3-cyano-2,5-dihydrofuran (DCDHF) moiety and one or more donor groups conjugated to the 2-dicyanomethylen-3-cyano-2,5-dihydrofuran group (e.g., 3-cyano-2-dicyanomethylen-4-[4-(N,N-dihexylaminophenyl)]-5,5-dimethyl-2,5-dihydrofuran, DCDHF-6). The donor groups can contain atoms with free electron pairs such as oxygen, sulfur, nitrogen, or phosphorous. The fluorophore compds. can be used to label and detect biol. mols. and biol. structures either in vivo or in vitro.
 IT 821789-34-8P, 3-Cyano-2-dicyanomethylen-5,5-dimethyl-4-[4-(3,5-dimethylpiperidin-1-yl)phenyl]-2,5-dihydrofuran
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses) (preparation of fluorophore compds. containing 2-dicyanomethylen-3-cyano-2,5-dihydrofuran for labeling biomols.)
 RN 821789-34-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[4-(3,5-dimethyl-1-piperidinyl)phenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



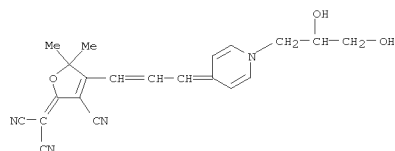
10560670.trn

L43 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)
 2004:1127374 Document No. 142:745550 A preparation of zwitterionic non-linear [(pyridinylidenealkylene)furanylidene]propanedinitrile derivatives, useful as optical chromophores (optophores). Woolhouse, Anthony David; Kay, Andrew John (Industrial Research Limited, N. Z.).
 PCT Int. Appl. WO 2004/11043 A1 20041223, 47 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-NZ124 20040617. PRIORITY: NZ 2003-526561 20030618.
 GI

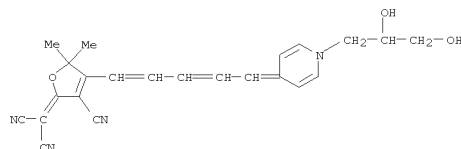


AB The invention relates to a preparation of zwitterionic second order non-linear optophores of formula I [wherein: L is a linking group comprising (un)substituted chain of 3,5, or 7 carbon atoms which, together with the double bond linking D to L forms a conjugated polyenic chain; R1 and R2 are independently selected from alkyl, hydroxyalkyl, or p-C6H4-OAc; D is a heterocycle]. These optophores display a large and efficient non-linear optical response and therefore can be used in the production of optoelectronic devices. For instance, (furanylidene)propanedinitrile derivative II (electronic absorption data in DMF: λ_{max} = 570 nm, $\log I_0 \epsilon$ = 4.86) was prepared with a yield of 83%.
 IT 814264-61-4P 814264-62-5P 814264-63-6P
 814264-64-7P 814264-65-8P 814264-66-9P
 814264-67-0P 814264-68-1P 814264-69-2P

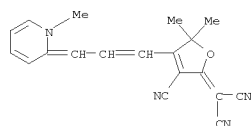
L43 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)
 CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



RN 814264-65-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



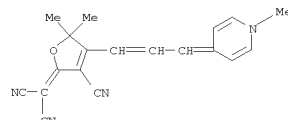
RN 814264-66-9 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-1-propen-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)



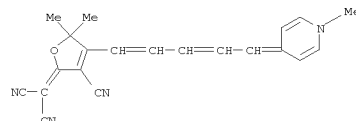
RN 814264-67-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-2(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)

L43 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)
 814264-70-5P
 RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of [(pyridinylidenealkylene)furanylidene]propanedinitrile derivs. useful as optophores)

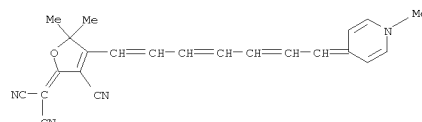
RN 814264-61-4 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[3-(1-methyl-4(1H)-pyridinylidene)-1-propen-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)



RN 814264-62-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-4(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)

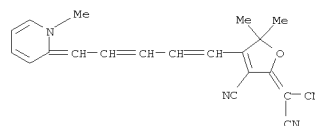


RN 814264-63-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-4(1H)-pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)

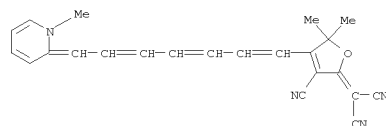


RN 814264-64-7 CAPLUS

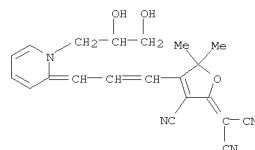
L43 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)



RN 814264-68-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-2(1H)-pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanylidene]- (CA INDEX NAME)



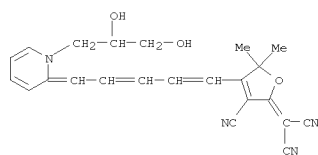
RN 814264-69-2 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[3-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



RN 814264-70-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

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L43 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

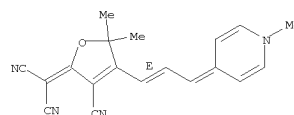


L43 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2004:283941 Document No. 141:729550 Synthesis and linear/nonlinear optical properties of a new class of 'RHS' NLO chromophore. Kay, Andrew J.; Woolhouse, Anthony D.; Zhao, Yuxia; Clays, Koen (Opto-Organics Group, Industrial Research Limited, Lower Hutt, N. Z.). Journal of Materials Chemistry, 14(8), 1321-1330 (English) 2004. CODEN: JMACEP. ISSN: 0959-9428. OTHER SOURCES: CASREACT 141:72955. Publisher: Royal Society of Chemistry.

AB Examples of a new class of zwitterionic, "right-hand side" (RHS) merocyanines containing a cyanodicyanomethylidenedihydrofuran electron acceptor were prepared. As well as allowing for the facile synthesis of these chromophores, the synthetic methodol. enables considerable variation in both the donor moiety as well as the extent of conjugation between the donor and acceptor systems. As expected, all of these RHS systems are neg. solvatochromic, with the difference between λ_{max} (polar vs. nonpolar solvents) increasing with the extent of conjugation. In accord with expectations, hyper-Raleigh scattering (HRS) measurements confirm that mols. with the greatest conjugation pathway have the largest first hyperpolarizabilities, β_0 . In addition, the HRS evaluation indicates that the 4-quinolinylidene donor nucleus is superior to both the 4-pyridinylidene and benzothiazolylidene systems. The figures of merit, $\mu(\text{calc})/\beta_0(\text{measured})$, that are obtained for some of these compds., are of a similar magnitude to the best "left hand side" examples reported in the literature. To demonstrate the versatility of the synthetic technique, representative polymer-tetherable derivs. of these compds.

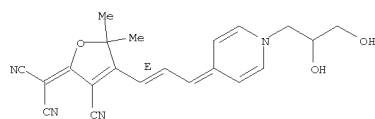
were prepared, as have the corresponding TDI-based polyurethanes.
IT 712273-71-7P 712273-72-8P 712273-74-0P
712273-75-1P 712273-76-2P 712273-77-3P
712273-85-3P 712273-86-4P 712273-87-5P
712273-88-6P 712273-89-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (synthesis and linear/nonlinear optical properties of new class of right-hand-side NLO chromophore)
RN 712273-71-7 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-3-(1-methyl-4(1H)-pyridinylidene)-1-propen-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



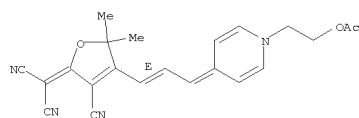
RN 712273-72-8 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

L43 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
Double bond geometry as shown.



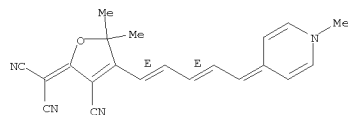
RN 712273-74-0 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-3-[1-[2-(acetyloxy)ethyl]-4(1H)-pyridinylidene]-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 712273-75-1 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-5-(1-methyl-4(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

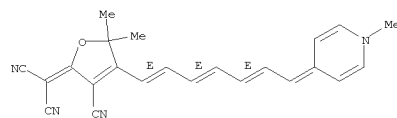
Double bond geometry as shown.



RN 712273-76-2 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-7-(1-methyl-4(1H)-pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

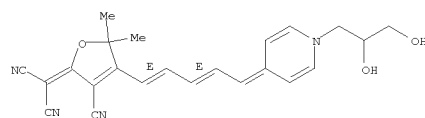
Double bond geometry as shown.

L43 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



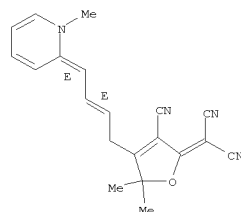
RN 712273-77-3 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 712273-85-3 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E)-4-(1-methyl-2(1H)-pyridinylidene)-2-buten-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.

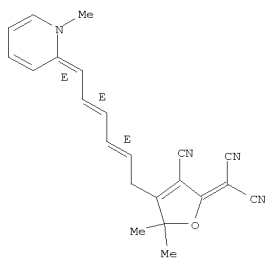


RN 712273-86-4 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-6-(1-methyl-2(1H)-pyridinylidene)-2,4-hexadien-1-yl]-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.

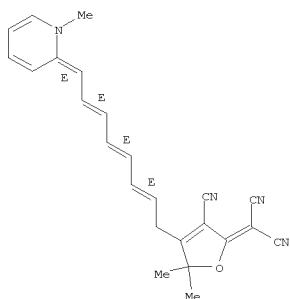
10560670.trn

L43 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 712273-87-5 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E,8E)-8-(1-methyl-2(1H)-pyridinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furanilydene]- (CA INDEX NAME)

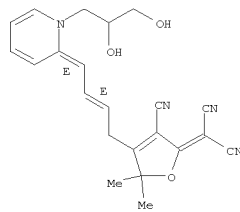
Double bond geometry as shown.



RN 712273-88-6 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furanilydene]- (CA INDEX NAME)

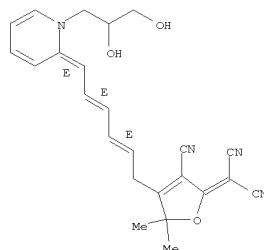
L43 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

Double bond geometry as shown.

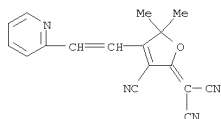


RN 712273-89-7 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-6-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-2,4-hexadien-1-yl]-5,5-dimethyl-2(5H)-furanilydene]- (CA INDEX NAME)

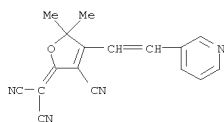
Double bond geometry as shown.



L43 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
1995:752764 Document No. 124:85310 Original Reference No. 124:1805a,1808a
Synthesis of substituted dicyanomethylendihydrofurans. Melikian, Gaguik; Rouessac, Francis P.; Alexandre, Christian (Laboratoire de Synthèse Organique, Faculté des Sciences, Le Mans, 72017, Fr.). Synthetic Communications, 25(19), 3045-51 (English) 1995. CODEN: SYNCV. ISSN: 0039-7911. OTHER SOURCES: CASREACT 124:8531. Publisher: Dekker.
AB A simple and efficient method for the preparation of the title compds. is described from α -ketols and malononitrile in the presence of sodium ethylate at room temperature. These compds. lead to unsatd. derivs. by condensation with aldehydes. For example, condensation reaction of propanedinitrile and 3-hydroxy-3-methyl-2-butanone gave (3-cyano-2,5-dihydro-4,5,5-trimethyl-2-furanilydene)propanedinitrile.
IT 171082-37-4P 171082-38-5P 171082-39-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of dicyanomethylendihydrofurans from hydroxy ketones and propanedinitrile)
RN 171082-37-4 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-furanilydene]- (CA INDEX NAME)

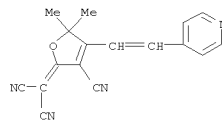


RN 171082-38-5 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(3-pyridinyl)ethenyl]-2(5H)-furanilydene]- (CA INDEX NAME)



RN 171082-39-6 CAPLUS
CN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(4-pyridinyl)ethenyl]-2(5H)-furanilydene]- (CA INDEX NAME)

L43 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

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FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

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L43 20 S L42

10560670.trn

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L44 0 L41 AND C2NS/RF

=> s l41 and c3ns/rf
2112373 C3NS/RF
L45 19 L41 AND C3NS/RF

=> s l41 and c3nSe/rf
16698 C3NSE/RF
L46 0 L41 AND C3NSE/RF

=> s l41 and c3SeN/rf
0 C3SEN/RF
L47 0 L41 AND C3SEN/RF

=> s l41 and Se/els
195781 SE/ELS
L48 0 L41 AND SE/ELS

=> s l41 and Se/es
0 SE/ES
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470 C2NO/RF
L50 0 L41 AND C2NO/RF

10560670.trn

This file contains CAS Registry Numbers for easy and accurate substance identification.

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(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

10560670.trn

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010
L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL

L51 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2010:304297 Document No. 152:556918 Toward highly efficient NLO
 chromophores: Synthesis and properties of heterocycle-based
 electronically

gradient dipolar NLO chromophores. Ma, Xiaohua; Ma, Fei; Zhao, Zhenhua;
 Song, Naiheng; Zhang, Jianping (Beijing National Laboratory for Molecular
 Sciences, Key Laboratory of Polymer Chemistry and Physics of Ministry of
 Education, Department of Polymer Science and Engineering, College of
 Chemistry and Molecular Engineering, Peking University, Beijing, 100871,
 Peop. Rep. China). Journal of Materials Chemistry, 20(12), 2369-2380
 (English) 2010. CODEN: JMACEP. ISSN: 0959-9428. Publisher: Royal
 Society of Chemistry.

AB To realize organic nonlinear optical (NLO) chromophores with optimized
 ground-state polarization and very large mol. optical nonlinearities, a
 novel series of heterocycle-based electronically gradient dipolar
 chromophores were designed and synthesized. These chromophores are
 featured by their same strong electron acceptor (i.e.,
 2-dicyanomethylene-3-cyano-4,5,5-trimethyl-2,5-dihydrofuran, TCF) and the
 same length of π -conjugation, but different electron donors (e.g.,
 dialkylamine and dianisylamine), different (hetero)aroms. with varying
 electron densities (i.e., pyrrole, thiophene, and benzene) as the
 auxiliary donor, and electron-poor 1,3-heteroarom. thiazole with
 different

regiostructures (e.g., either electron-poor C2, "matched", or
 electron-rich C5, "un-matched", is connected to the acceptor) as the
 auxiliary acceptor, which allows for a systematic fine-tuning of the
 ground-state polarization. The gradient electronic structures and
 optical

properties of these NLO chromophores were carefully characterized by ¹H
 NMR, CV, UV-vis, and Hyper-Rayleigh scattering expts. All the NLO
 chromophores exhibited very large static mol. first hyperpolarizabilities
 (β_0) in the range of 450-960 + 10-30 esu, which showed
 significant dependence on the gradient electronic structures. Upon using
 electron-rich heteroarom. cycle as the auxiliary donor, "matched"

thiazole
 as the auxiliary acceptor, and/or dianisylamine as the electron donor,
 substantially enhanced β were obtained. Theor. studies were carried
 out to understand the structure-property relationships, which showed that
 multiple states excitations contributed to the β values of this
 series of NLO chromophores. TGA investigations showed excellent thermal
 stability for most of the resulting NLO chromophores, with on-set temps.
 for thermal decomposition higher than 250 °C. The very large β_0
 values coupled with the high thermal stability indicates good application
 potential of this series of NLO chromophores.

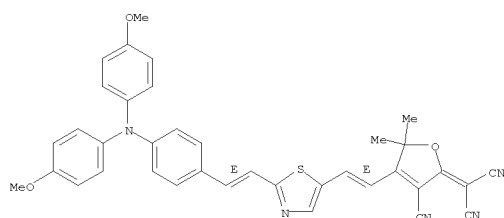
IT 1225601-89-7P 1225601-90-0P 1225601-91-1P
 1225601-94-4P 1225601-96-6P 1225601-98-8P
 NL: PEP (Physical, engineering or chemical process); PRP (Properties);

SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP
 (Preparation); PROC (Process); USES (Uses)
 (toward highly efficient NLO chromophores and synthesis and properties
 of heterocycle-based electronically gradient dipolar NLO chromophores)

RN 1225601-89-7 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[2-[(1E)-2-[4-
 (dimethylamino)phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]- (CA INDEX NAME)

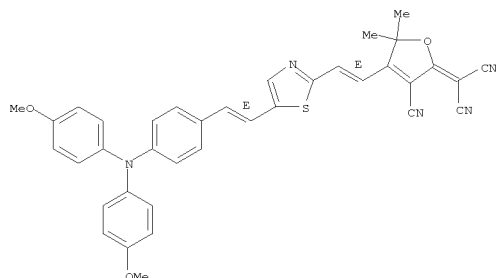
L51 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 methoxyphenyl]amino]phenyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 1225601-96-6 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis(4-
 methoxyphenyl)amino]phenyl]ethenyl]-2-thiazolyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

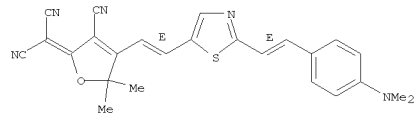


RN 1225601-98-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[4-[(1E)-2-[5-(1-
 piperidinyl)-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-2(5H)-furanylidene]-
 (CA INDEX NAME)

Double bond geometry as shown.

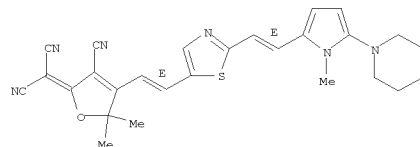
L51 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

Double bond geometry as shown.



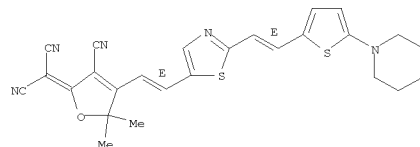
RN 1225601-90-0 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[1-methyl-5-
 (1-piperidinyl)-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-
 furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



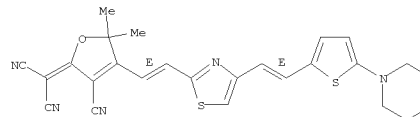
RN 1225601-91-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[5-(1-
 piperidinyl)-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-furanylidene]-
 (CA INDEX NAME)

Double bond geometry as shown.



RN 1225601-94-4 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[2-[(1E)-2-[4-bis(4-

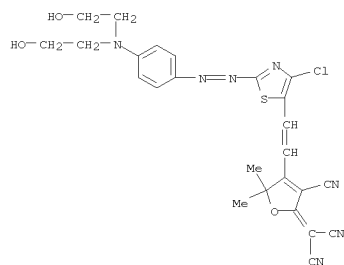
L51 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L51 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2009:365685 Document No. 150:4594270 Modulated Conjugation as a Means of
 Improving the Intrinsic Hyperpolarizability. Perez-Moreno, Javier; Zhao,
 Yuxia; Clays, Koen; Kuzyk, Mark G.; Shen, Yuquan; Qiu, Ling; Hao, Jumin;
 Guo, Kumpeng (Department of Chemistry, University of Leuven, Louvain,
 B-3001, Belg.). Journal of the American Chemical Society, 131(14),
 5084-5093 (English) 2009. CODEN: JACSAT. ISSN: 0002-7863. OTHER
 SOURCES: CASREACT 150:459427. Publisher: American Chemical Society.
 AB A new strategy for optimizing the 1st hyperpolarizability based on the
 concept of a modulated conjugated path in linear mol's. was studied.

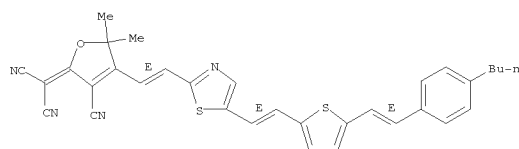
Seven novel chromophores with different types of conjugated paths were
 synthesized and characterized. Hyper-Rayleigh scattering expts.
 confirmed that modulated conjugation paths that include benzene, thiophene, and/or
 thiazole rings in combination with azo and/or ethenyl linkages between
 dihydroxyethylamino donor groups and various acceptor groups result in
 enhanced intrinsic hyperpolarizabilities that exceed the long-standing
 apparent limit for two of the chromophores. The exptl. results are
 analyzed and interpreted in the context of quantum limits, which show
 that conjugation modulation of the bridge in donor/acceptor mol's.
 simultaneously optimizes the transition moments and the energy-level
 spacing.
 IT 716378-72-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (modulated conjugation as means of improving intrinsic
 hyperpolarizability)
 RN 716378-72-2 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[2-[2-[4-[bis(2-

hydroxyethyl)amino]phenyl]diazanyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-
 5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)



L51 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2008:415128 Document No. 149:79068 Order of magnitude effects of thiazole
 regioisomerism on the near-IR two-photon cross-sections of dipolar
 chromophores. Schmidt, Karin; Leclercq, Amalia; Zojer, Egbert; Lawson,
 Padreyia V.; Jang, Sei-Hum; Barlow, Stephen; Jen, Alex K.-Y.; Marder,
 Seth R.; Bredas, Jean-Luc (School of Chemistry and Biochemistry and Center for
 Organic Photonics and Electronics, Georgia Institute of Technology,
 Atlanta, GA, 30332-0400, USA). Advanced Functional Materials, 18(5),
 794-801 (English) 2008. CODEN: AFMDC6. ISSN: 1616-301X. Publisher:
 Wiley-VCH Verlag GmbH & Co. KGaA.
 AB We have investigated computationally the two-photon absorption (2PA)
 properties of donor-acceptor dipolar chromophores, the conjugated
 backbones of which contain two five-membered heterocyclic groups which
 may be electron-rich (thiophene-2,5-diyl) and/or electron-deficient
 (thiazole-2,5-diyl). Quantum-chemical calcs. (INDO/MRDCI/S-tensor and
 Sum-Over-States calcs. based on DFT-optimized geometries) indicate that
 the two-photon cross-sections into the lowest two excited states S1 and
 S2 can be tuned by more than an order of magnitude by varying the nature,
 order, and, in the case of thiazole, orientation of the heterocycles.
 Going from one thiazole regioisomer to the other has the strongest impact
 on the 2PA spectra and can even invert the ratio between the 2PA
 cross-sections of S1 and S2. An essential-state anal. reveals that
 different channels dominate 2PA into S1 and S2. The sensitivity of 2PA
 into S1 towards the orientation of the thiazole ring stems from a local
 modulation on the thiazole ring of the change in state dipole moment upon
 excitation to S1, Δμ01, whereas the dominant essential parameter
 through which the thiazole orientation affects 2PA into S2 is the
 transition dipole moment between S1 and S2, μ12.
 IT 1034158-71-8 1034158-72-9 1034158-73-0
 1034158-74-1 1034158-75-2 1034158-76-3
 RL: PRP (Properties)
 (order of magnitude effects of thiazole regioisomerism on near-IR
 two-photon cross-sections of dipolar chromophores)
 RN 1034158-71-8 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-(4-

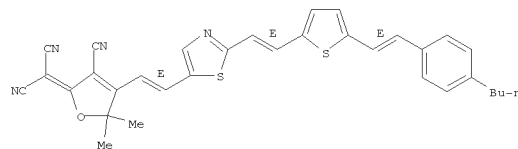
butylphenyl)ethenyl]-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)
 Double bond geometry as shown.



RN 1034158-72-9 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[2-[[(1E)-2-[5-[(1E)-2-(4-
 butylphenyl)ethenyl]-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

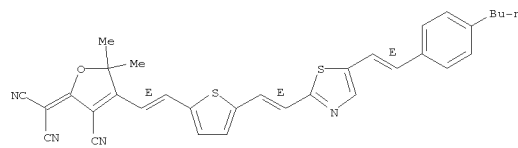
L51 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

L51 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 Double bond geometry as shown.



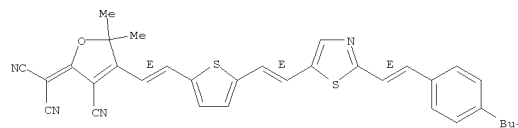
RN 1034158-73-0 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-(4-
 butylphenyl)ethenyl]-2-thiazolyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 1034158-74-1 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[2-[(1E)-2-(4-
 butylphenyl)ethenyl]-5-thiazolyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.

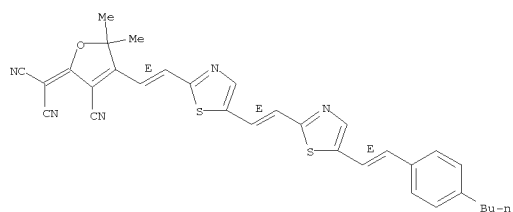


RN 1034158-75-2 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-(4-
 butylphenyl)ethenyl]-2-thiazolyl]ethenyl]-2-thiazolyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.

10560670.trn

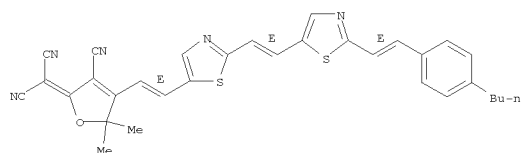
L51 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 1034158-76-3 CAPLUS

CN Propanedinitrile, 2-[4-[(1E)-2-[2-[(1E)-2-[2-[(1E)-2-(4-butylphenyl)ethenyl]-5-thiazolyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.



L51 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN

2007:1205147 Document No. 148:365650 Record-high intrinsic hyperpolarizabilities for polymeric electro-optic modulators. Perez-Moreno, Javier; Asselberghs, Inge; Zhao, Yuxia; Song, Kai; Nakanishi, Hachiro; Okada, Shuji; Nogi, Kyoko; Kim, Oh-Kil; Je, Jongtae; Matrai, Janka; De Maeyer, Marc; Kuzyk, Mark G.; Clays, Koen (Department of Chemistry, Univ. of Leuven, Louvain, B-3001, Belg.). Proceedings of SPIE-The International Society for Optical Engineering, 6713 (Nanophotonics and Macrophotonics for Space Environments), 671303/1-671303/14 (English) 2007. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB The results of three independently strategies for the optimizations of electro-optic organic chromophores is presented. The first strategy to enhance the nonlinear optical response, applied at the mol. level, is the extension of the conjugation path in a ionic chromophore. The second strategy, applied at the supramol. level, is the bottom-up nano-engineering of an inclusion complex of the ionic chromophore in an amylose helix. The third strategy, also applied a the mol. level, is to use a modulated conjugation path between donor and acceptor in order to localize eigenfunctions on different parts of the mol. The first hyperpolarizability of the different series of compds. has been exptl. determined by frequency-resolved femtosecond hyper-Rayleigh scattering.

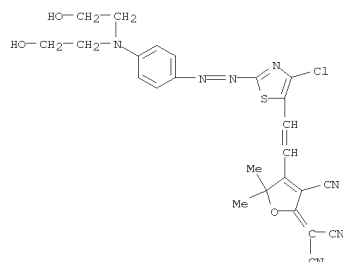
IT The effects of the three different enhancement strategies are analyzed and interpreted in terms of the quantum limits.

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process) (record-high intrinsic hyperpolarizabilities for polymeric electro-optic modulators)

RN 716378-72-2 CAPLUS

CN Propanedinitrile, 2-[4-[2-[2-[2-[4-bis(2-hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

L51 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L51 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN

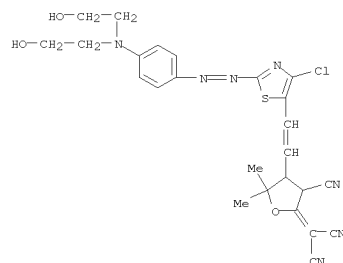
2007:1168150 Document No. 148:295179 Modulated conjugation for record-high intrinsic hyperpolarizabilities. Perez-Moreno, Javier; Clays, Koen; Kuzyk, Mark G.; Zhao, Yuxia; Shen, Yuqian; Qiu, Ling; Hao, Junling (Department of Chemistry, Univ. of Leuven, Louvain, B-3001, Belg.). Proceedings of SPIE-The International Society for Optical Engineering, 6653 (Linear and Nonlinear Optics of Organic Materials VII), 66530W/1-66530W/8 (English) 2007. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB The effects of a complex hybrid conjugation path in linear mols. as an strategy to optimize the intrinsic first hyperpolarizability is investigated. A series of 7 novel chromophores with different hybrid conjugation paths were synthesized and characterized. Hyper-Rayleigh scattering expts. confirm that complex hybrid conjugation paths, including benzene, thiophene and/or thiazole rings in combination with azo- and/or ethenyl-linkages, between a dihydroxyethylamino donor group and different acceptor groups, results in an enhanced intrinsic hyperpolarizability that exceed the apparent limit for two of the chromophores.

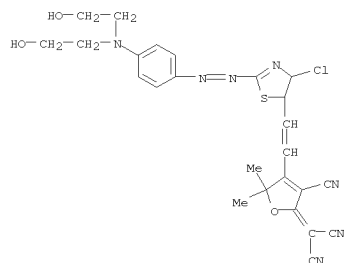
IT 1008099-91-9 RL: PRP (Properties) (modulated conjugation for record-high intrinsic hyperpolarizabilities)

RN 1008099-91-9 CAPLUS

CN Propanedinitrile, 2-[4-[2-[2-[2-[4-bis(2-hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(3H)-furanlydene]- (CA INDEX NAME)

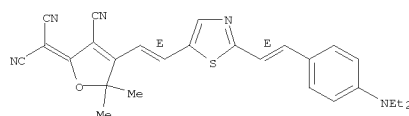


L51 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2007:96107 Document No. 146:379495 Modulated conjugation as a means for
 attaining a record high intrinsic hyperpolarizability. Perez-Moreno,
 Javier; Zhao, Yuxia; Clays, Koen; Kuzyk, Mark G. (Department of
 Chemistry,
 University of Leuven, Louvain, B-3001, Belg.). Optics Letters, 32(1),
 59-61 (English) 2007. CODEN: OPLEDP. ISSN: 0146-9592. Publisher:
 Optical Society of America.
 AB We report on a series of chromophores that have been synthesized with a
 modulated conjugation path between donor and acceptor. Hyper-Rayleigh
 scattering measurements of the best mol. show an enhanced intrinsic
 hyperpolarizability that breaches the apparent limit of all previously
 studied mols.
 IT 930648-59-2
 RL: PRP (Properties)
 (modulated conjugation as means for attaining high intrinsic
 hyperpolarizability)
 RN 930648-59-2 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[2-[2-[4-[bis(2-
 hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-4,5-dihydro-5-
 thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX
 NAME)



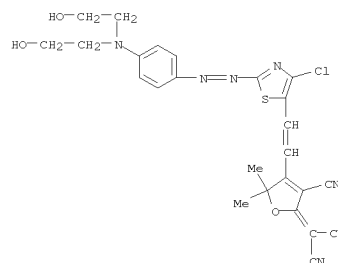
L51 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2005:1076309 Document No. 144:301132 Frequency-agile hyper-Rayleigh
 scattering studies of electro-optic chromophores. Firestone, Kimberly
 A.;
 Lao, David B.; Casmier, Daniel M.; Clot, Olivier; Dalton, Larry R.; Reid,
 Philip J. (Department of Chemistry, Univ. of Washington, Seattle, WA,
 98195-1700, USA). Proceedings of SPIE-The International Society for
 Optical Engineering, 5935 (Linear and Nonlinear Optics of Organic
 Materials
 V), 59350P/1-59350P/9 (English) 2005. CODEN: PSISDG. ISSN: 0277-786X.
 Publisher: SPIE-The International Society for Optical Engineering.
 AB Hyper-Rayleigh scattering (HRS) is used to measure the
 first-hyperpolarizability (β) of electro-optic (EO) chromophores.
 One of the inherent concerns in any HRS measurement is the extent to
 which
 resonant enhancement contributes to the observed intensity thereby
 leading to
 inaccuracies when evaluating chromophore potential for application in
 electro-optical devices. One way to address this concern is to employ
 increasingly longer excitation wavelengths far from resonance. However,
 in charge-transfer-based non-linear optical chromophores, enhanced β
 generally correlates with a red-shift of the charge transfer absorption
 band so that even at the longest excitation wavelengths generally
 employed
 in HRS studies, resonant enhancement remains an issue. We have adopted
 an
 alternative approach in which the wavelength dispersion of the HRS
 intensity is determined by performing measurements at a variety of
 excitation
 wavelengths. This approach allows one to ascertain the role of resonance
 enhancement thereby allowing for more accurate correlation of improved
 β with mol. architecture. We report the results of our HRS studies
 for nine chromophores employing excitation wavelengths ranging from 780
 to
 1907 nm. Our HRS results demonstrate good agreement with the predictions
 of d. functional theory. This synthesis of exptl. and theor. techniques
 has resulted in more effective designs for the next generations of
 electro-optical chromophores.
 IT 873803-06-6 873803-07-7
 RL: PRP (Properties)
 (frequency-agile hyper-Rayleigh scattering studies of electro-optic
 chromophores)
 RN 873803-06-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[2-[(1E)-2-[4-
 (diethylamino)phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



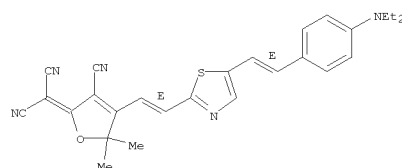
RN 873803-07-7 CAPLUS

L51 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2006:923589 Document No. 146:489939 Modulated conjugation as a means for
 breaching the apparent limit of the hyperpolarizability. Perez-Moreno,
 Javier; Clays, Koen; Zhao, Yuxia; Kuzyk, Mark G. (Department of
 Chemistry,
 University of Leuven, Louvain, B-3001, Belg.). Los Alamos National
 Laboratory, Preprint Archive, Physics 1-3, arXiv:physics/0608300
 (English)
 31 Aug 2006. CODEN: LNPHF9. URL:
 http://aps.arxiv.org/PS_cache/physics/pdf/0608/0608300.pdf Publisher:
 Los
 Alamos National Laboratory.
 AB Chromophores that were synthesized with a modulated conjugation path
 between donor and acceptor are reported. Hyper-Rayleigh scattering
 measurements of the best mol. shows an enhanced hyperpolarizability that
 breaches the apparent limit.
 IT 716378-72-2
 RL: PRP (Properties)
 (modulated conjugation as means for breaching apparent limit of
 hyperpolarizability of)
 RN 716378-72-2 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[2-[2-[4-[bis(2-
 hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-
 5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



L51 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-
 (diethylamino)phenyl]ethenyl]-2-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



L51 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2005:358523 Document No. 143:777830 Two-Photon Absorption at
 Telecommunications Wavelengths in a Dipolar Chromophore with a Pyrrole
 Auxiliary Donor and Thiazole Auxiliary Acceptor. Beverina, Luca; Fu,

Jie;

Leclercq, Amalia; Zojer, Egbert; Pacher, Peter; Barlow, Stephen; Van
 Stryland, Eric W.; Hagan, David J.; Bredas, Jean-Luc; Marder, Seth R.
 (School of Chemistry and Biochemistry, Center for Organic Photonics and
 Electronics, Georgia Institute of Technology, Atlanta, GA, 30332-0400,
 USA). Journal of the American Chemical Society, 127(20), 7282-7283
 (English) 2005. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES:

CASREACT

143:77783. Publisher: American Chemical Society.

AB Three new dipolar chromophores based on a dialkylaminophenyl donor, a
 pyrrole auxiliary donor, a thiazole auxiliary acceptor, and strong
 heterocyclic acceptors have been synthesized. For one of these compds.

we

have measured a very large non-degenerate two-photon cross section of ca.
 1500 CM in the near-IR telecommunications range using a pump-probe
 technique. Calcns. indicate the cross section for degenerate two-photon
 absorption is likely to be ca. 60% of this value.

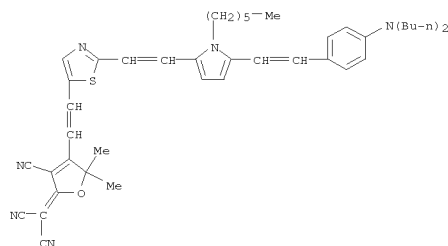
IT 855773-97-6P

855774-00-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (two-photon absorption at telecommunications wavelengths in a dipolar
 chromophore with a pyrrole auxiliary donor and thiazole auxiliary
 acceptor)

RN 855773-97-6 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[2-[2-[5-[2-[4-
 (dibutylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-
 thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)



RN 855774-00-4 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[4-[2-[2-[5-[2-[4-
 (dibutylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]-
 1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

L51 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
 2004:211926 Document No. 141:96181 Study on novel second-order NLO
 azo-based

chromophores containing strong electron-withdrawing groups and different
 conjugated bridges. Qiu, Ling; Shen, Yuqian; Hao, Jumin; Zhai, Jianfeng;
 Zu, Fenghua; Zhang, Tao; Zhao, Yuxia; Clays, K.; Persoons, A. (Technical
 Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing,
 100101, Peop. Rep. China). Journal of Materials Science, 39(7),
 2335-2340

(English) 2004. CODEN: JMTSAS. ISSN: 0022-2461. Publisher: Kluwer
 Academic Publishers.

AB Novel NLO azo-based chromophores containing strong electron-withdrawing
 groups

and benzene or thiazole moiety as conjugated bridges were synthesized and
 characterized. β Values were measured by HRS method, they are in the
 range of 238-1459 + 10-30 esu at the fundamental wavelength of 800
 nm. For chromophore 3 and 4, β values at the fundamental wavelength
 of 1064 nm were also measured, they are 1575 + 10-30 esu and 935
 + 10-30 esu, resp. Thermal stabilities for these chromophores are
 reported. We also discuss the effects of different acceptors and
 conjugating moieties on β .

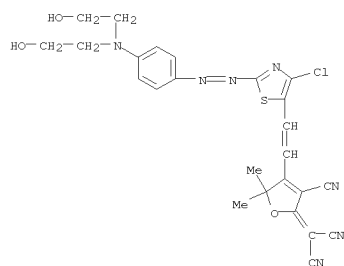
IT 716378-72-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (second-order NLO azo-based chromophores containing strong
 electron-withdrawing groups and different conjugated bridges)

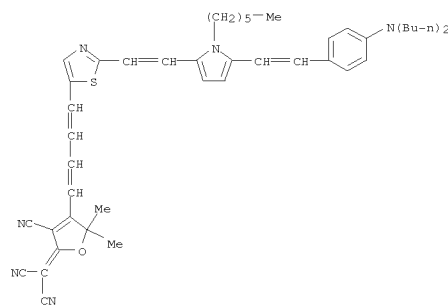
RN 716378-72-2 CAPLUS

CN Propanedinitrile, 2-[4-[2-[2-[2-[4-[bis(2-

hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-
 5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)



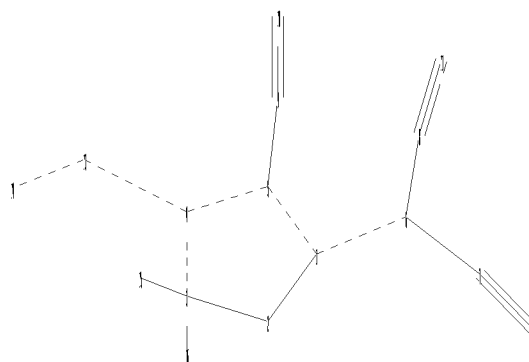
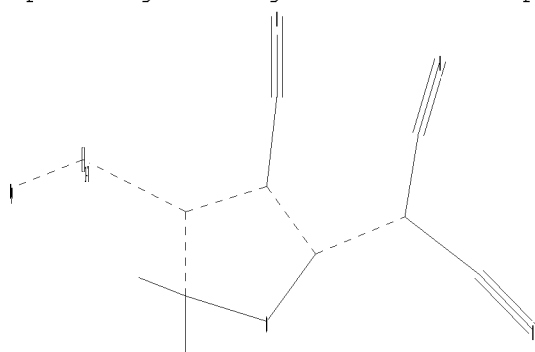
L51 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



10560670.trn

=>

Uploading C:\Program Files\Stnexp\Queries\10560070-66.str



chain nodes :

6 7 8 9 14

ring nodes :

1 2 3 4 5

ring/chain nodes :

10 11 12 13 15 16

chain bonds :

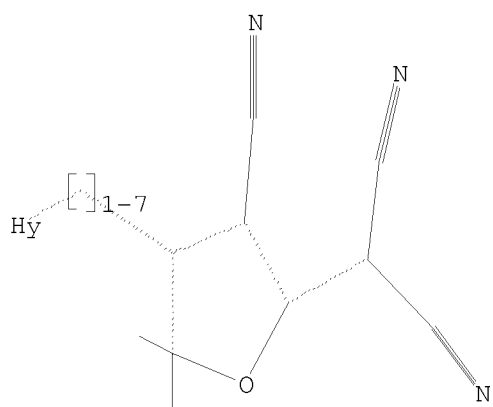
1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10

ring/chain bonds :

13-14

ring bonds :

10560670.trn



Structure attributes must be viewed using STN Express query preparation.

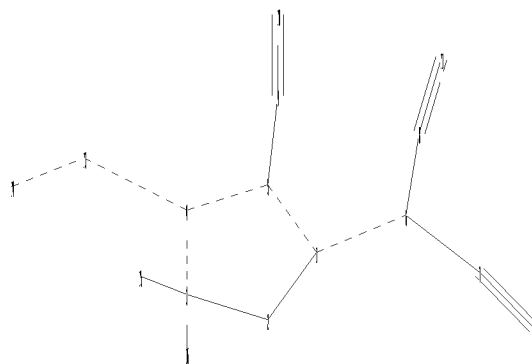
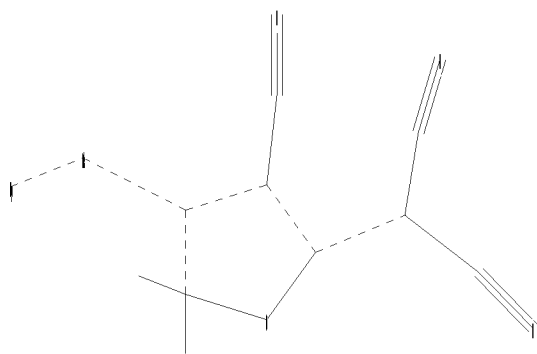
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REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

10560670.trn

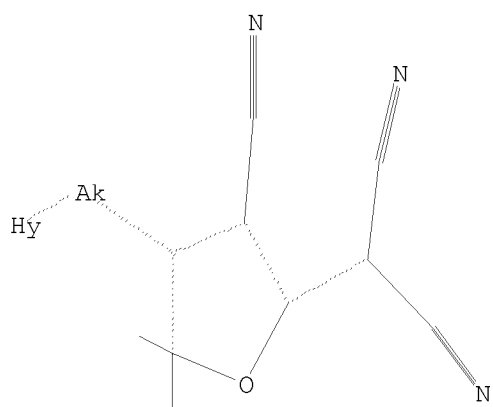


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chain nodes :
6 7 8 9 13 14
ring nodes :
1 2 3 4 5
ring/chain nodes :
10 11 12 15 16
chain bonds :
1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10 13-14
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 1-6 2-3 3-4 4-5 4-13 7-12 8-11 9-10 13-14

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10560670.trn



Structure attributes must be viewed using STN Express query preparation.

=> s 153

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

10560670.trn

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

10560670.trn

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19

L21 214 S L20 AND C5N/RF

L22 21 S L21 AND PROPANEDINITRILE

L23 5 S L21 AND DICYANOMETHYLENE

L24 25 S L22 OR L23

L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS

L28 19 S L25 NOT L27

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010

L29 90 S L27

L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010

10560670.trn

FILE 'CAPLUS' ENTERED AT 16:13:19 ON 07 JUN 2010
L51 10 S L45
L52 STRUCTURE UPLOADED
S L52

FILE 'REGISTRY' ENTERED AT 16:16:10 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:16:10 ON 07 JUN 2010
L53 STRUCTURE UPLOADED
S L53

FILE 'REGISTRY' ENTERED AT 16:17:35 ON 07 JUN 2010
L54 23 S L53

FILE 'CAPLUS' ENTERED AT 16:17:36 ON 07 JUN 2010
L55 48 S L54

FILE 'REGISTRY' ENTERED AT 16:17:41 ON 07 JUN 2010

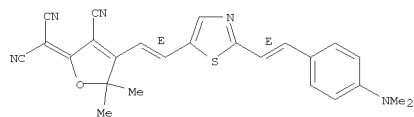
=> s sub=141 sam 155
SUBSET AND SAMPLE ARE IGNORED FOR THIS SEARCH
L56 23 L54

=> s sub=141 sam 153
SAMPLE SUBSET SEARCH INITIATED 16:18:14 FILE 'REGISTRY'
SAMPLE SUBSET SCREEN SEARCH COMPLETED - 52 TO ITERATE

10560670.trn

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[2-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C25 H21 N5 O S

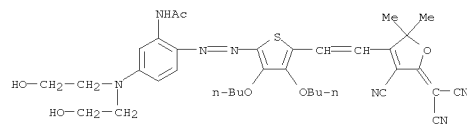
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Acetamide, N-[5-[bis(2-hydroxyethyl)amino]-2-[2-[3,4-dibutoxy-5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]diazenyl]phenyl]-
MF C36 H43 N7 O6 S

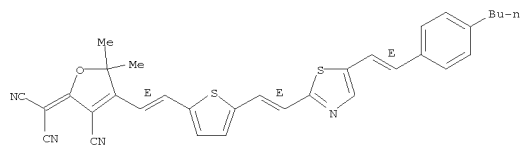


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-(4-butylphenyl)ethenyl]-2-thiazolyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C33 H28 N4 O S2

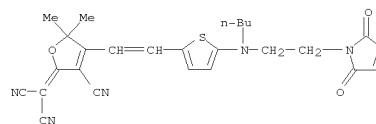
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[butyl[2-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)ethyl]amino]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C26 H25 N5 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

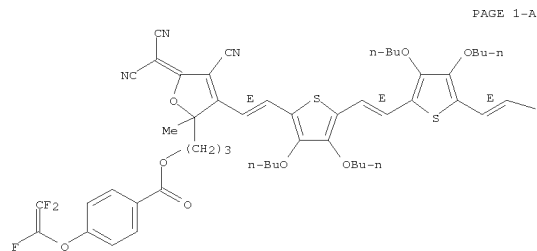
10560670.trn

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 2,4-diaminophenol dihydrochloride, 6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate (ester) 4-[(trifluoroethenyl)oxy]benzoate (ester)
 (9CI)
 MF C73 H81 F3 N4 O12 S2 . x (C19 H6 F6 O6 . C6 H8 N2 O . 2 C1 H)x . x C9 H5 F3 O3

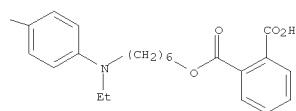
RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

Double bond geometry as shown.

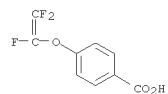


PAGE 1-B



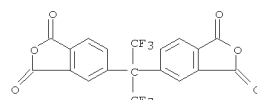
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

CM 2

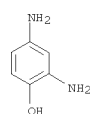


CM 3

CM 4



CM 5

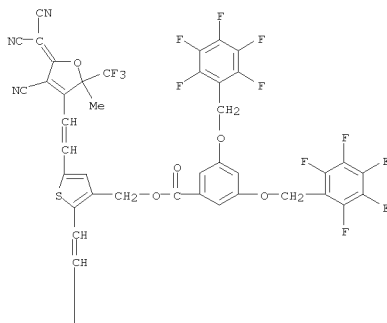


● 2 HCl

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

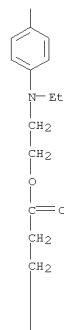
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1H-Pyrrole-1-propanoic acid, 2,5-dihydro-2,5-dioxo-, 2-[[4-[2-[3-[[[3,5-bis[(2,3,4,5,6-pentafluorophenyl)methoxy]benzoyl]oxy]methyl]-5-[(2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]ethyl ester
 MF C57 H36 F13 N5 O9 S

PAGE 1-A



L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A



PAGE 3-A



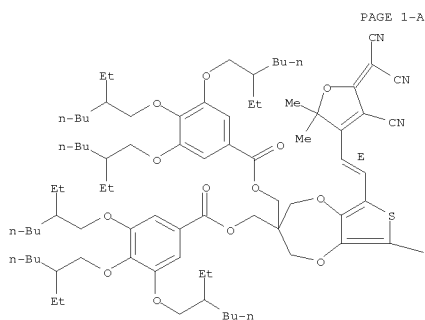
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

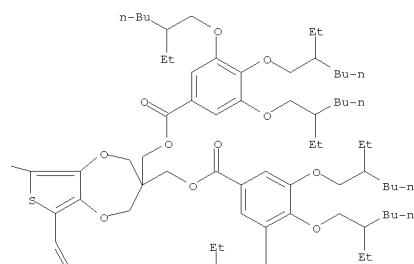
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,4,5-tris[(2-ethylhexyl)oxy]-,
[8-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-
furanyl]ethenyl]-8'-[(1E)-2-[4-(dibutylamino)phenyl]ethenyl][6,6'-bi-2H-
thieno[3,4-b][1,4]dioxepin]-3,3'-(4H,4'H)-diylidene]tetrakis(methylene)
ester (9CI)
MF C170 H260 N4 O25 S2

Double bond geometry as shown.

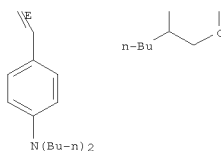


L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B



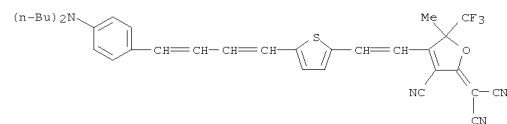
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-
butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-
furanylidene]-
MF C34 H33 F3 N4 O S

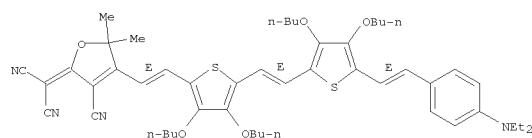


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C50 H62 N4 O5 S2

Double bond geometry as shown.

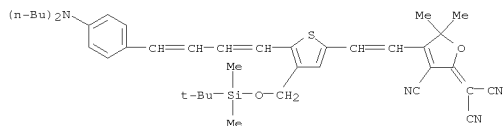


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C41 H52 N4 O2 S Si



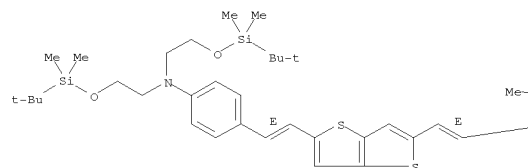
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

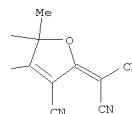
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C42 H54 N4 O3 S2 Si2

Double bond geometry as shown.

PAGE 1-A



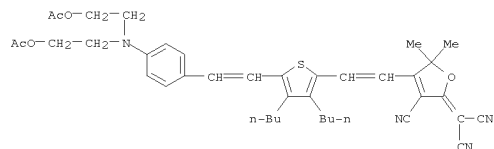
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C40 H46 N4 O5 S

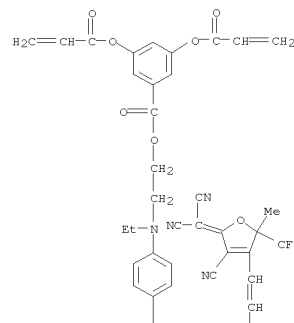


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

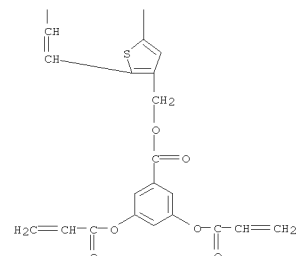
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[(1-oxo-2-propen-1-yl)oxy]-, [2-[2-[4-[[2-[[[3,5-bis[(1-oxo-2-propen-1-yl)oxy]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanly]ethenyl]-3-thienyl]methyl ester
MF C55 H41 F3 N4 O13 S

PAGE 1-A



PAGE 2-A



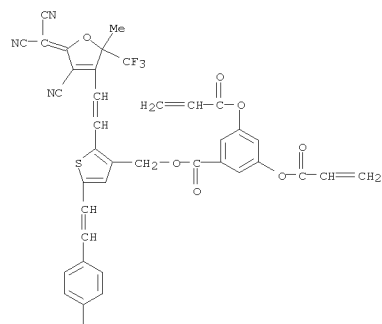
10560670.trn

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

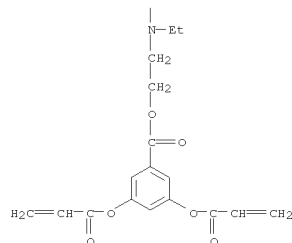
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[(1-oxo-2-propen-1-yl)oxy]-,
[5-[2-[4-[[2-[[3,5-bis[(1-oxo-2-propen-1-yl)oxy]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-2-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-3-thienyl]methyl ester
MF C55 H41 F3 N4 O13 S

PAGE 1-A



L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PAGE 2-A

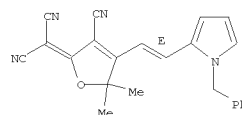


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[1-(phenylmethyl)-1H-pyrrol-2-yl]ethenyl]-2(5H)-furanlidene]-
MF C23 H18 N4 O

Double bond geometry as shown.

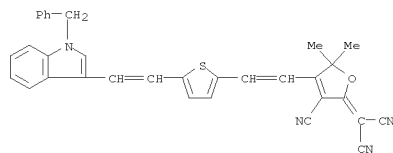


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-[5-[2-[1-(phenylmethyl)-1H-
indol-3-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-furanylidene]-
MF C33 H24 N4 O S

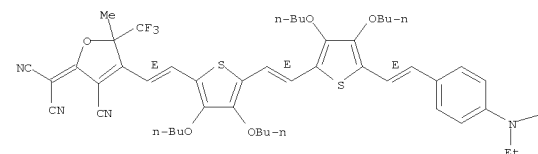


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

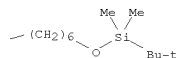
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]-
MF C60 H81 F3 N4 O6 S2 Si

Double bond geometry as shown.



PAGE 1-A

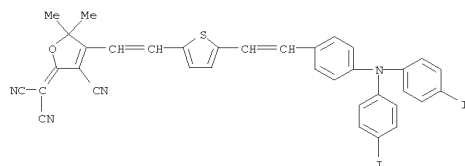
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

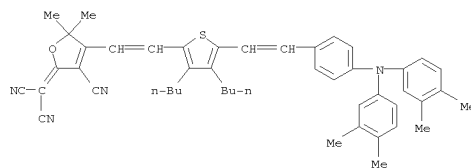
L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[4-[2-[5-[2-[4-[bis(4-iodophenyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C36 H24 I2 N4 O S
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L57 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(3,4-dimethylphenyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C48 H50 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41

=> s sub=l41 full l53
FULL SUBSET SEARCH INITIATED 16:19:23 FILE 'REGISTRY'
FULL SUBSET SCREEN SEARCH COMPLETED - 947 TO ITERATE

100.0% PROCESSED 947 ITERATIONS 471 ANSWERS
SEARCH TIME: 00.00.01

L58 471 SEA SUB=L41 SSS FUL L53

=> s l58 not l42
L59 424 L58 NOT L42

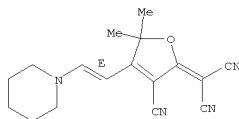
=> s l58 not 45
 98757 45
L60 471 L58 NOT 45

=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(1-
 piperidinyl)ethenyl]-2(5H)-furan-2-ylidene]-
 MF C17 H18 N4 O
 CI CCM

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN
 SAM - Index Name, MF, and structure - no RN
 FIDE - All substance data, except sequence data
 IDE - FIDE, but only 50 names
 SQIDE - IDE, plus sequence data
 SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
 SQD - Protein sequence data, includes RN
 SQD3 - Same as SQD, but 3-letter amino acid codes are used
 SQN - Protein sequence name information, includes RN

EPROP - Table of experimental properties
 PPROP - Table of predicted properties
 PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
 APPS -- Application and Priority Information
 BIB -- CA Accession Number, plus Bibliographic Data
 CAN -- CA Accession Number
 CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
 IND -- Index Data
 IPC -- International Patent Classification

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PATS -- PI, SO
 STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels
 IBIB -- BIB, indented, with text labels
 ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)
 OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
 SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL plus SPEC.
 The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.
 HELP FORMATS -- To see detailed descriptions of the predefined formats.
 HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

10560670.trn

=> d scan

10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C111 H117 N9 O3 S3

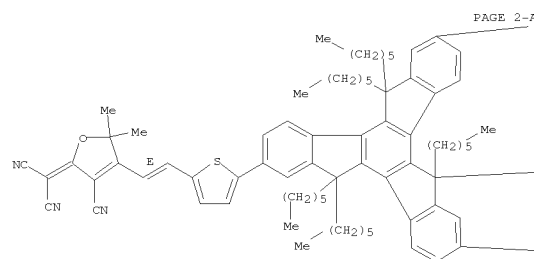
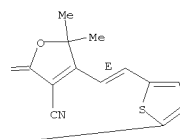
Double bond geometry as shown.

PAGE 1-A



L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

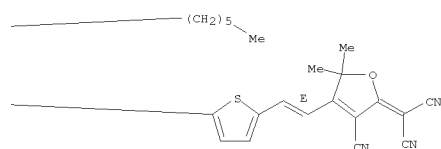
PAGE 1-B



PAGE 2-A

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-B

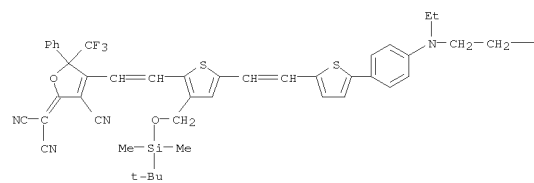


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

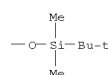
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2000

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[5-[4-[2-[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]ethylamino]phenyl]-2-thienyl]ethenyl]-3-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-phenyl-5-(trifluoromethyl)-2(5H)-furan-2-ylidene]-
MF C50 H57 F3 N4 O3 S2 Si2

PAGE 1-A



PAGE 1-B

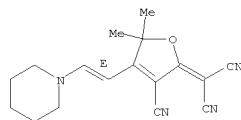


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(1-piperidinyl)ethenyl]-2(5H)-furan-ylidene]-, hydrate (50:19)
MF C17 H18 N4 O . 19/50 H2 O

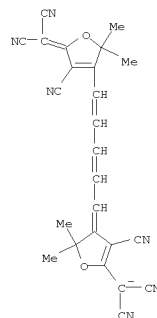
Double bond geometry as shown.



●19/50 H₂O

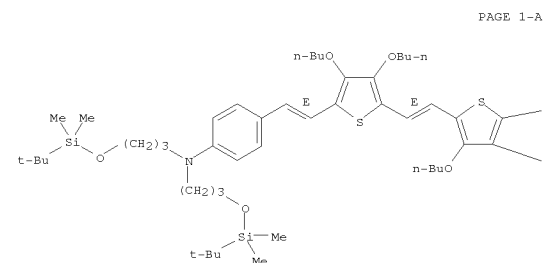
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[5-[4-cyano-5-(dicyanomethyl)-2,2-dimethyl-3(2H)-furan-ylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furan-ylidene]-,
ion (1-)
MF C25 H17 N6 O2
CI CCM

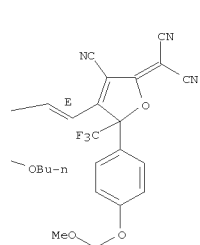


L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis[3-[(1,1-dimethylethyl)dimethylsilyloxy]propylamino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5-[4-(methoxymethoxy)phenyl]-5-(trifluoromethyl)-2(5H)-furan-ylidene]-
MF C71 H97 F3 N4 O9 S2 Si2

Double bond geometry as shown.



PAGE 1-A

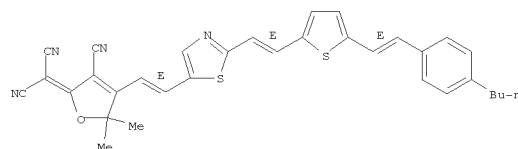


PAGE 1-B

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[2-[(1E)-2-[5-[(1E)-2-(4-butylphenyl)ethenyl]-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-ylidene]-
MF C33 H28 N4 O S2

Double bond geometry as shown.

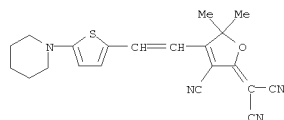


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

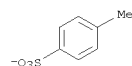
10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonic acid, 4-methyl-, compd. with
 2-[3-cyano-5,5-dimethyl-4-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2(5H)-
 furanylidene]propanedinitrile, ion(1-) (1:1)
 MF C21 H20 N4 O S . C7 H7 O3 S

CM 1



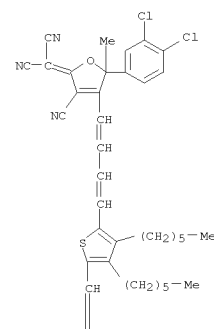
CM 2



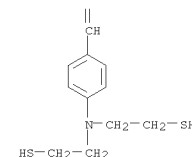
L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[5-[2-[4-[bis(2-
 mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
 yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furan-2-ylidene]-, polymer
 with
 1,1'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[1H-
 pyrrole-2,5-dione] and 4,4'-thiobis[benzenethiol]
 MF (C47 H52 Cl2 N4 O S3 . C20 H4 F8 N2 O4 . Cl2 H10 S3)x
 CI PMS

CM 1

PAGE 1-A

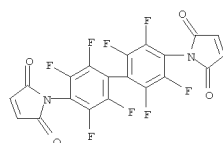


PAGE 2-A

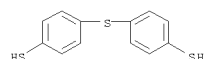


L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

CM 2

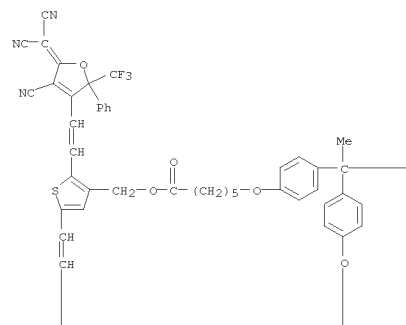


CM 3



L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Hexanoic acid, 6,6',6''-[ethylidynetris(4,1-phenyleneoxy)]tris-,
 1,1',1''-tris[[2-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-phenyl-2-
 (trifluoromethyl)-3-furanyl]ethenyl]-5-[2-[4-[[2-[[[1,1-
 dimethylethyl]dimethylsilyl]oxy]ethyl]methylanino]phenyl]ethenyl]-3-
 thienyl]methyl] ester
 MF C155 H159 F9 N12 O15 S3 Si3

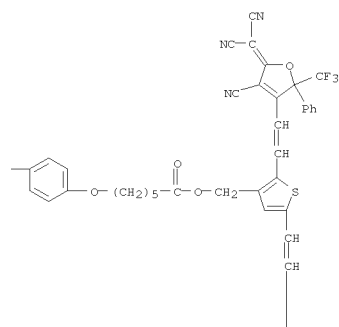
PAGE 1-A



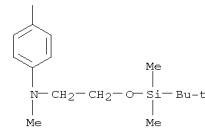
10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

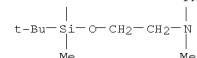
PAGE 1-B



PAGE 2-B

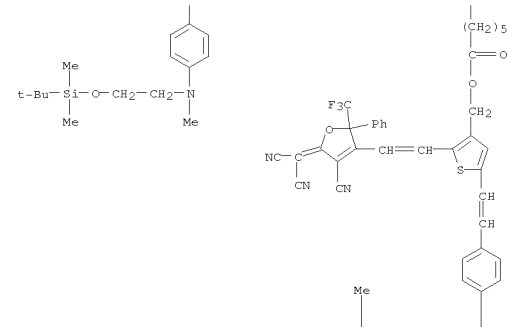


PAGE 3-A

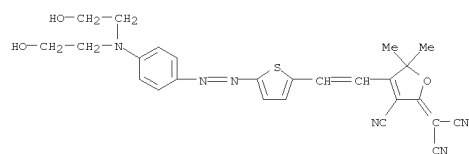


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

PAGE 2-A

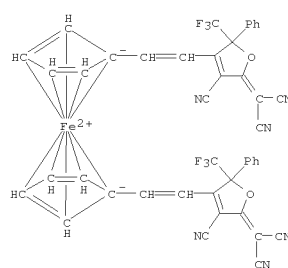


L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]diazenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-
MF C26 H24 N6 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

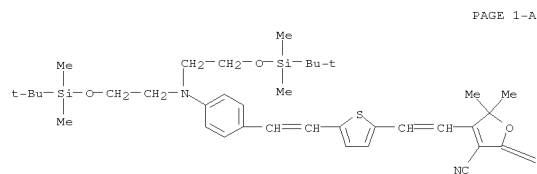
L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Ferrocene, 1,1'-bis[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-phenyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-
MF C44 H22 F6 Fe N6 O2
CI CCS



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-
 MF C40 H54 N4 O3 S Si2



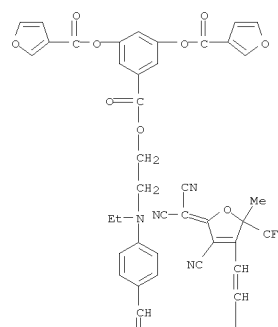
PAGE 1-B



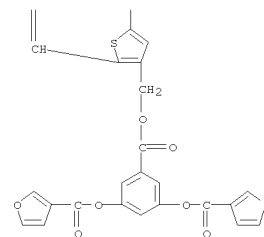
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT
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L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

L60 471 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 3-Furancarboxylic acid, 3,3'-[5-[[[2-[2-[4-[[[2-[3,5-bis[(3-furanylcarbonyl)oxy]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-2-thienyl]methoxy]carbonyl]-1,3-phenylene] ester
 MF C63 H41 F3 N4 O17 S



PAGE 2-A



10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

10560670.trn

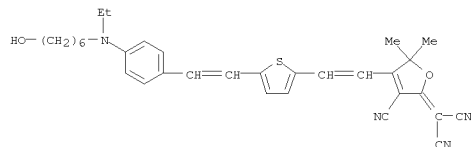
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L58          471 S FULL L53 SUB=L41
L59          424 S L58 NOT L42
L60          471 S L58 NOT 45
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=> s 160 and ed<=2004
      78285588 ED<=2004
      (ED<=20049999)
L61          132 L60 AND ED<=2004
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=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'
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10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyhexylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-furanylidene]-
MF C32 H34 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN
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IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN

EPROP - Table of experimental properties
PPROP - Table of predicted properties
PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- FI, SO

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels
IBIB -- BIB, indented, with text labels
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.
The MAX format is the same as ALL plus SPEC.
The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

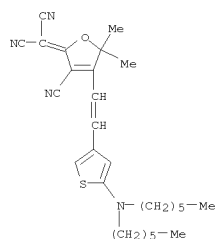
HELP DFIELDS -- To see a complete list of individual display fields.
HELP FORMATS -- To see detailed descriptions of the predefined formats.
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

10560670.trn

=> d scan

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[2-[5-(dihexylamino)-3-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furanlidene]-
MF C28 H36 N4 O S

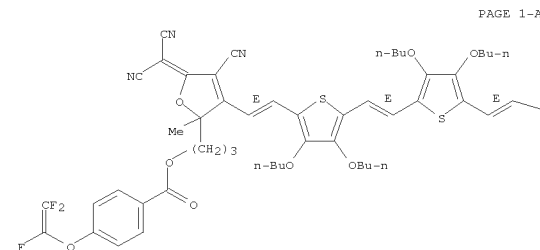


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2000

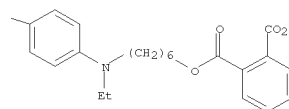
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer, 6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate 4-[(trifluoroethenyl)oxy]benzoate (9CI)
MF C73 H81 F3 N4 O12 S2 . x C9 H5 F3 O3 . x (C8 H8 O)x

CM 1
Double bond geometry as shown.



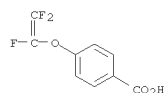
PAGE 1-A

PAGE 1-B



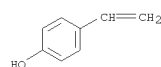
CM 2

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



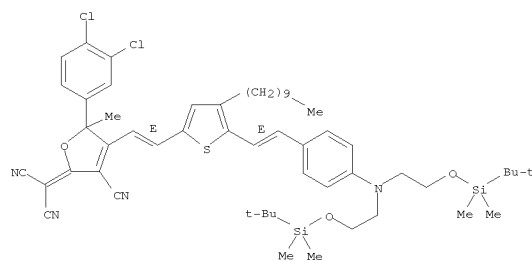
CM 3

CM 4



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlidene]-
MF C55 H74 Cl2 N4 O3 S Si2

Double bond geometry as shown.

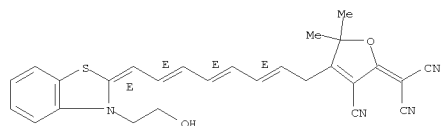


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[(2E,4E,6E)-8-[3-(2-hydroxyethyl)-2(3H)-
benzothiazolylidene]-2,4,6-octatrien-1-yl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C27 H24 N4 O2 S

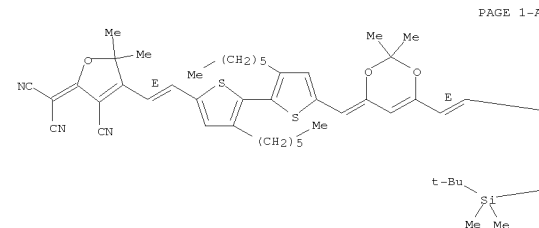
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

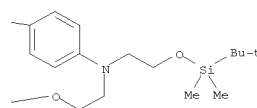
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5'-[[6-[(1E)-2-[4-[bis[2-[(1,1-
dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-
4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-
yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF C63 H88 N4 O5 S2 Si2

Double bond geometry as described by E or Z.



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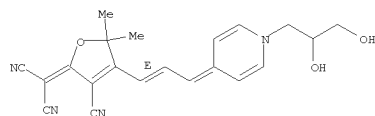
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C21 H20 N4 O3

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

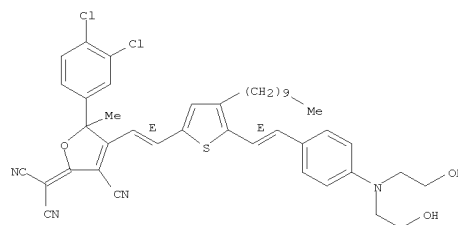
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Bicyclo[2.2.1]hept-5-ene-2,3-dicarbonyl dichloride,
1,4,5,6,7,7-hexachloro-, polymer with

[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-
2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-
furanylidene]propanedinitrile and 2,3,5,6-tetrachloro-1,4-
benzenedimethanol (9CI)

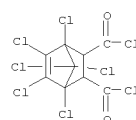
MF (C43 H46 Cl2 N4 O3 S . C9 H2 Cl8 O2 . C8 H6 Cl4 O2)x
CI PMS

CM 1

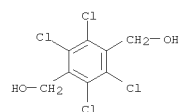
Double bond geometry as shown.



CM 2



CM 3



10560670.trn

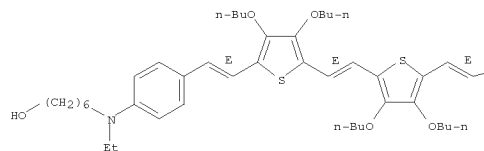
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

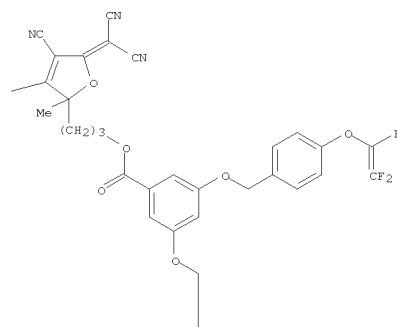
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-,
3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-
furanyl]propyl ester
MF C81 H88 F6 N4 O12 S2

Double bond geometry as shown.

PAGE 1-A

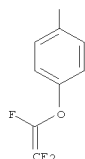


PAGE 1-B



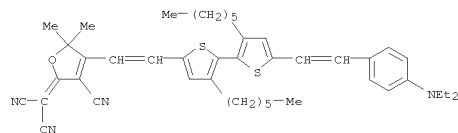
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[2-[5'-[2-[4-(diethylamino)phenyl]ethenyl]-
3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C44 H52 N4 O S2

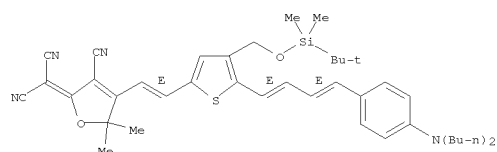


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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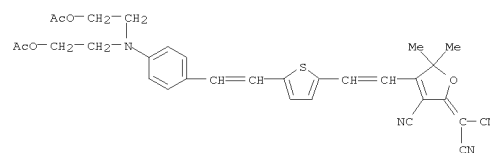
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(
 (dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-
 dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-
 2(5H)-furanlydene]-
 MF C41 H52 N4 O2 S Si

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

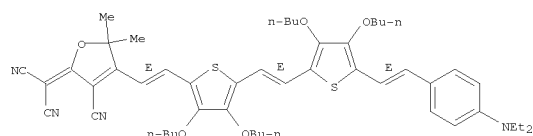
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(
 (acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furanlydene]-
 MF C32 H30 N4 O5 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

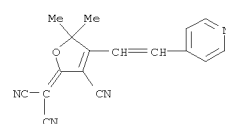
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
 dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-
 thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
 MF C50 H62 N4 O5 S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-(4-pyridinyl)ethenyl]-2(5H)-
 furanlydene]-
 MF C17 H12 N4 O

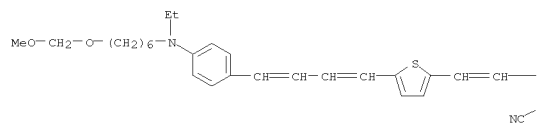


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

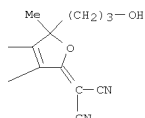
10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl[6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanilydene]-MF C38 H44 N4 O4 S

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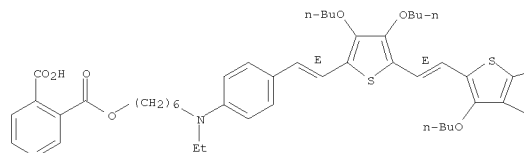
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer,
6-[[4-(1E)-2-[[5-((1E)-2-[[5-((1E)-2-[[3-
[[3,5-bis[[4-(1-trifluoromethoxy)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-
cyano-5-(dicyanophenyl)ene]-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-
dibutoxy-2-thenyl]ethenyl]-3,4-dibutoxy-2-
thenyl]ethenyl]phenyl]ethanol]lancol]hept-1,2-benzenedicarboxylate
4-[[1-trifluoromethoxy]oxy]benzoate (9C1)
MF C89 H92 F6 N4 O15 S2 . x C8 H5 F3 O3 . x (C8 H8 O)x

CM 1

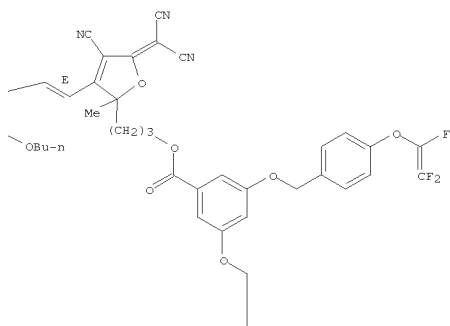
Double bond geometry as shown.

PAGE 1-A

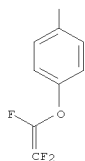


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

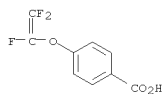
PAGE 1-B



PAGE 2-B



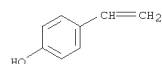
CM 2



CM 3

CM 4

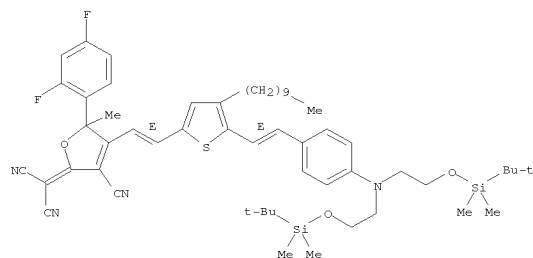
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



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L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(2,4-difluorophenyl)-5-methyl-2(5H)-furanlydene]-
 MF C55 H74 F2 N4 O3 S Si2

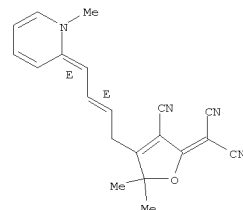
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E)-4-(1-methyl-2(1H)-pyridinylidene)-2-buten-1-yl]-2(5H)-furanlydene]-
 MF C20 H18 N4 O

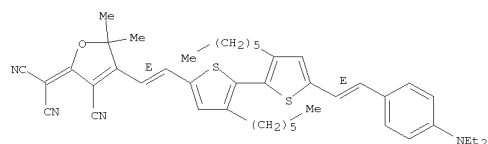
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
 MF C44 H52 N4 O S2

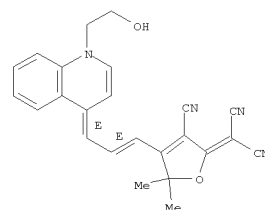
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-3-[1-(2-hydroxyethyl)-4(1H)-quinolinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
 MF C24 H20 N4 O2

Double bond geometry as shown.



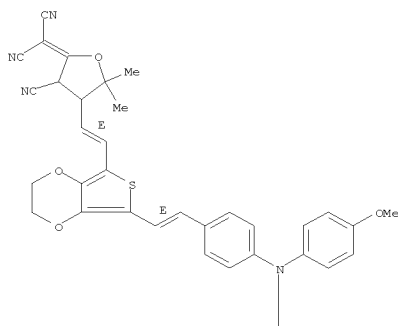
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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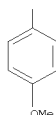
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[7-[(1E)-2-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(3H)-furanlydene]-
 MF C40 H34 N4 O5 S

Double bond geometry as shown.

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PAGE 2-A

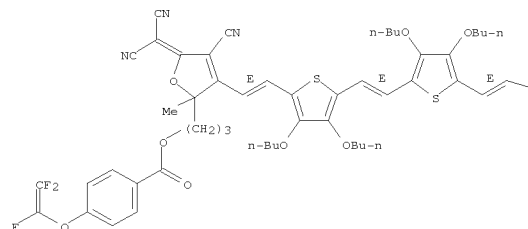


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

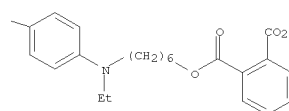
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(1,2,2-trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] ester
 MF C73 H81 F3 N4 O12 S2
 CI CCM

Double bond geometry as shown.

PAGE 1-A



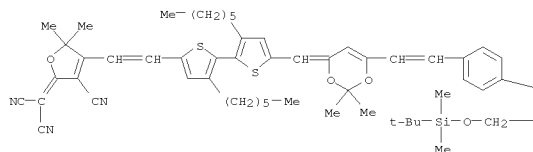
PAGE 1-B



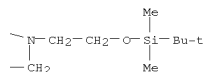
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5'-[[6-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
 MF C63 H88 N4 O5 S2 Si2

PAGE 1-A

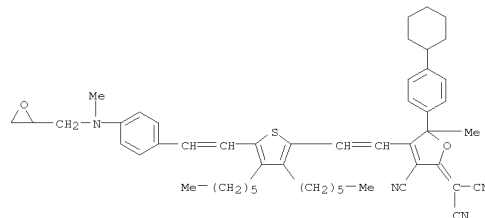


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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

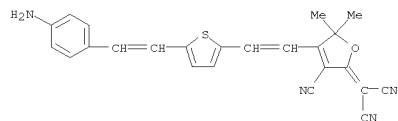
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[3,4-dihexyl-5-[2-[4-[methyl(2-oxiranylmethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-2(5H)-furanlydene]-
 MF C51 H60 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

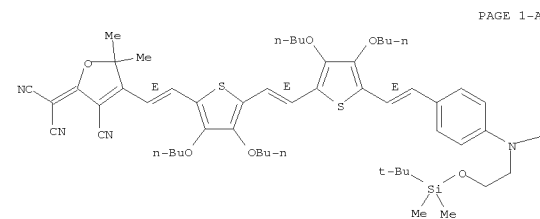
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-(4-aminophenyl)ethenyl]-2-thienyl]ethenyl]-
3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C24 H18 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

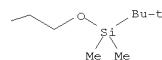
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C62 H90 N4 O7 S2 Si2

Double bond geometry as shown.



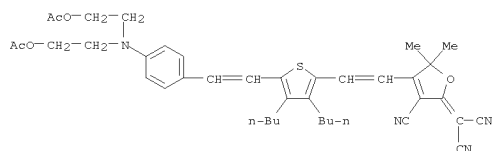
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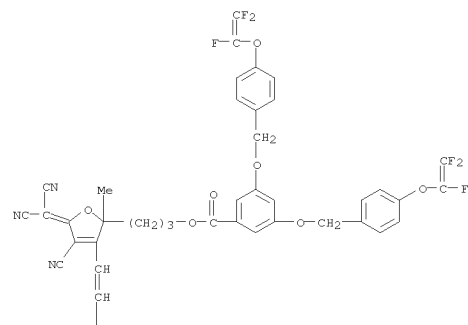
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C40 H46 N4 O5 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethyl)oxy]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-[ethyl[6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furanyl]propyl ester
MF C63 H58 F6 N4 O9 S

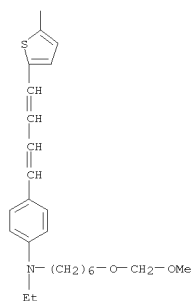


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10560670.trn

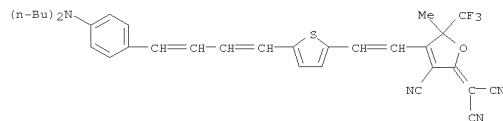
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

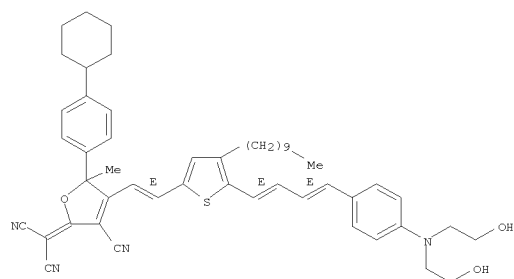
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanlydene]-
 MF C34 H33 F3 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E,3E)-4-[4-[bis(2-hydroxyethyl)amino]phenyl]-1,3-butadien-1-yl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanlydene]-
 MF C51 H60 N4 O3 S

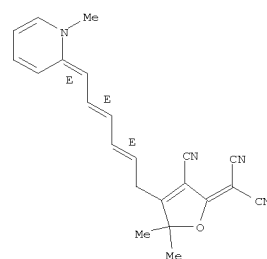
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-6-(1-methyl-2(1H)-pyridinylidene)-2,4-hexadien-1-yl]-2(5H)-furanlydene]-
 MF C22 H20 N4 O

Double bond geometry as shown.

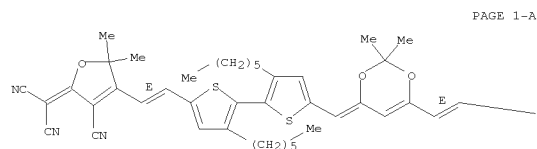


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

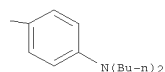
10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[[6-[(1E)-2-[4-(dibutylamino)phenyl]ethenyl]-2,2-dimethyl-4H-1,3-dioxin-4-ylidene)methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
 MF C55 H68 N4 O3 S2

Double bond geometry as described by E or Z.



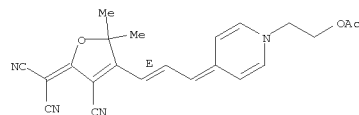
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-3-[1-[2-(acetyloxy)ethyl]-4(1H)-pyridinylidene]-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
 MF C22 H20 N4 O3

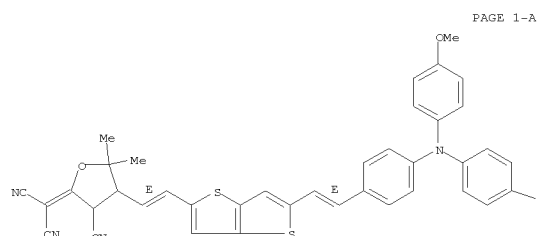
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(3H)-furanlydene]-
 MF C40 H32 N4 O3 S2

Double bond geometry as shown.



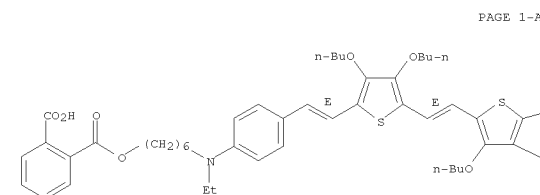
PAGE 1-B



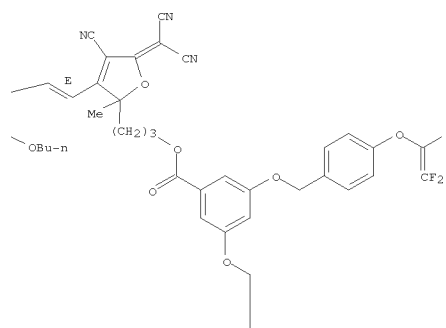
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] ester
 MF C89 H92 F6 N4 O15 S2
 CI CCM

Double bond geometry as shown.

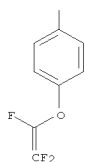


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10560670.trn

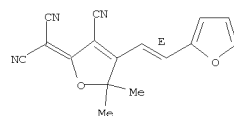
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-(2-furanyl)ethenyl]-5,5-dimethyl-
2(5H)-furanylidene]-
MF C16 H11 N3 O2

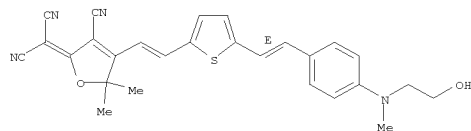
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

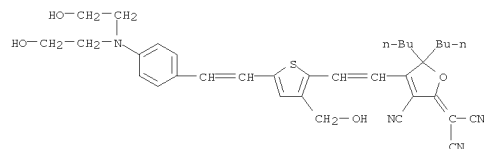
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-
2(5H)-furanylidene]-
MF C27 H24 N4 O2 S

Double bond geometry as described by E or Z.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]-
5,5-dibutyl-3-cyano-2(5H)-furanylidene]-
MF C35 H40 N4 O4 S



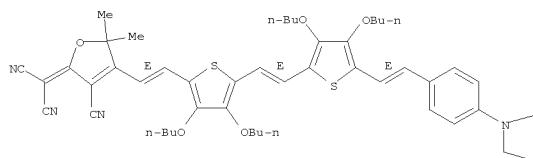
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C50 H62 N4 O7 S2

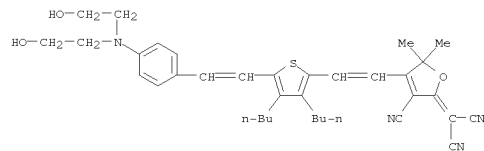
Double bond geometry as shown.

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L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C36 H42 N4 O3 S
CI CCM



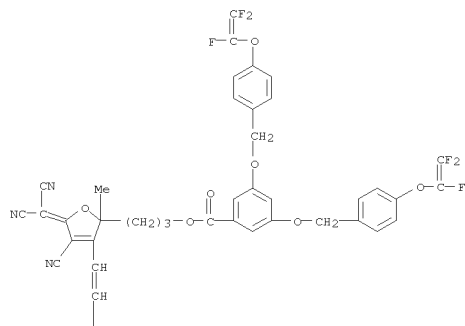
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



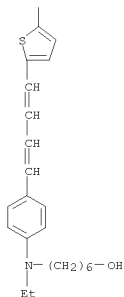
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furanyl]propyl ester
MF C61 H54 F6 N4 O8 S

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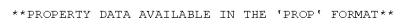
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L61 132 ANSWERS      REGISTRY  COPYRIGHT 2010 ACS on STN
IN  Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-
butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-
thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furan-2-ylidene]-
MF  C41 H49 F3 N4 O2 S Si

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L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E,3E)-4-{5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-1,3-butadien-1-yl]-3-
cyano-5-(4-cyclohexylphenyl)-5-methyl-2 (5H)-furanlylidene]-
MF C51 H60 N4 O3 S

Double bond geometry as shown.



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E,8E)-8-(1-methyl-
2(1H)-pyridinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furanylidene]-
MF C24 H22 N4 O

Double bond geometry as shown.



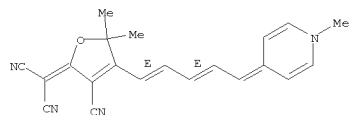
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C41 H52 N4 O2 S Si



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L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-5-(1-methyl-4(1H)-
pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]-
MF C21 H18 N4 O

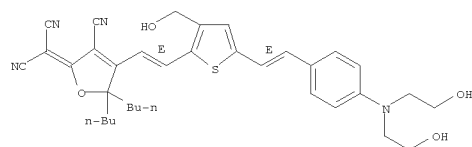
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]-
5,5-dibutyl-3-cyano-2(5H)-furanylidene]-
MF C35 H40 N4 O4 S

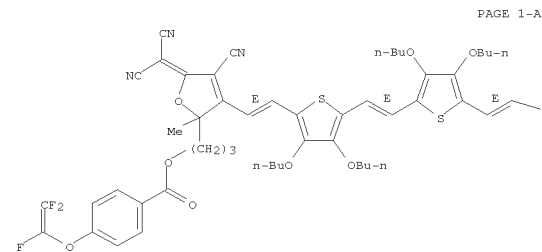
Double bond geometry as shown.



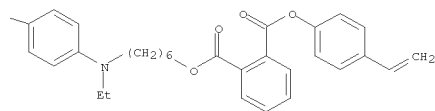
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-
[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-
2-[3-[[4-[(1,2,2-trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-
furanyl]ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]phenyl]ethylamino]hexyl] 2-(4-ethenylphenyl) ester
MF C81 H87 F3 N4 O12 S2
CI CCM

Double bond geometry as shown.



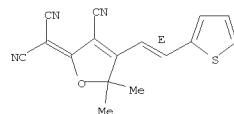
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(2-thienyl)ethenyl]-
2(5H)-furanylidene]-
MF C16 H11 N3 O S

Double bond geometry as shown.

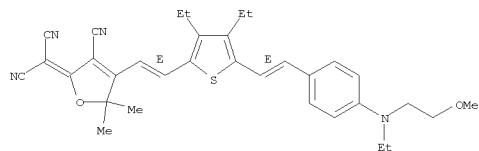


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

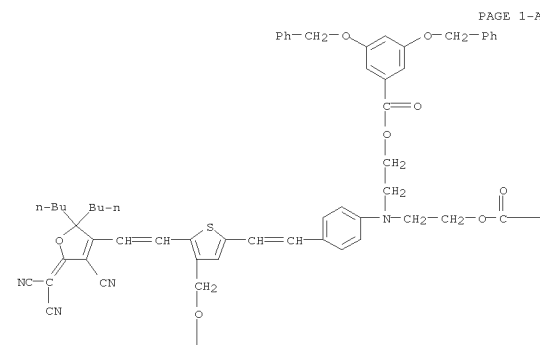
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-4-[(1E)-2-[3,4-diethyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C33 H36 N4 O2 S

Double bond geometry as shown.

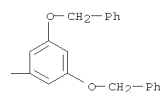


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

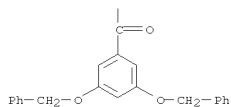
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis(phenylmethoxy)-,
 [[4-[2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy]methyl]-5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediy ester (9CI)
 MF C98 H88 N4 O13 S



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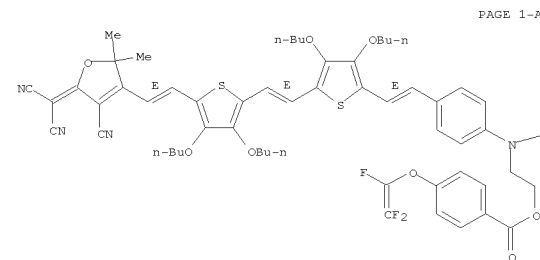
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 2-A



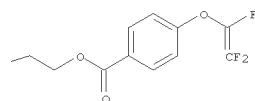
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 4-[(trifluoroethenyl)oxy]-,
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 MF C68 H68 F6 N4 O11 S2

Double bond geometry as shown.



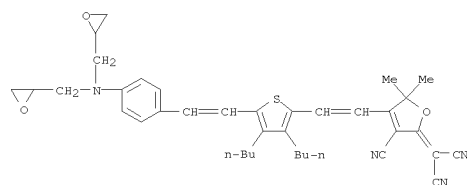
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

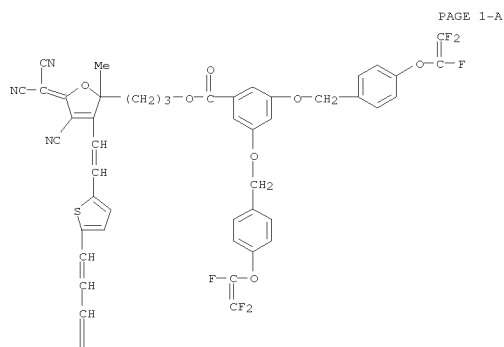
10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-oxiran-2-ylmethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C38 H42 N4 O3 S

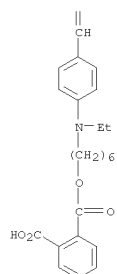


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid,
 1-[6-[4-[4-[5-[2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester
 MF C69 H58 F6 N4 O11 S
 CI CCM



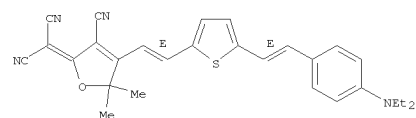
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C28 H26 N4 O S

Double bond geometry as shown.

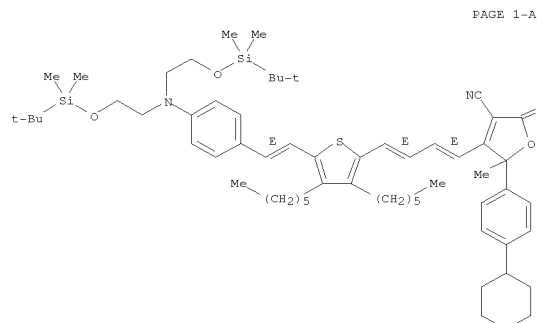


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanlylidene]-
 MF C65 H92 N4 O3 S Si2

Double bond geometry as shown.



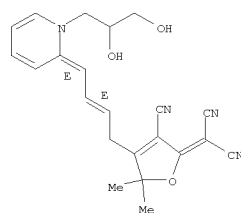
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]-
 MF C22 H22 N4 O3

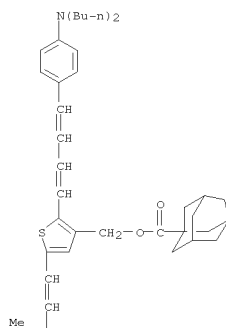
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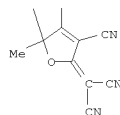
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Tricyclo[3.3.1.1.3,7]decane-1-carboxylic acid, [5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-3-thienyl]methyl ester
 MF C46 H52 N4 O3 S

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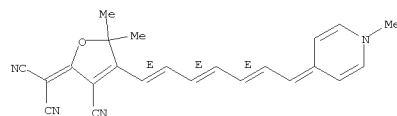
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-7-(1-methyl-4(1H)-pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlylidene]-
 MF C23 H20 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

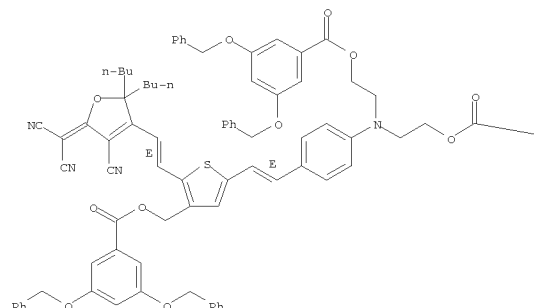
10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis(phenylmethoxy)-,

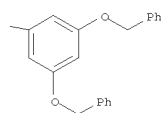
[[4-[(1E)-2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy]methyl]-5-[(1E)-2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
MF C98 H88 N4 O13 S

Double bond geometry as shown.

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PAGE 1-B

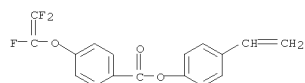


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid, 6-[[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-

dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 4-ethenylphenyl ester, polymer with 4-ethenylphenyl 4-[(trifluoroethenyl)oxy]benzoate (9CI)

MF (C81 H87 F3 N4 O12 S2 . C17 H11 F3 O3)x
CI PMS

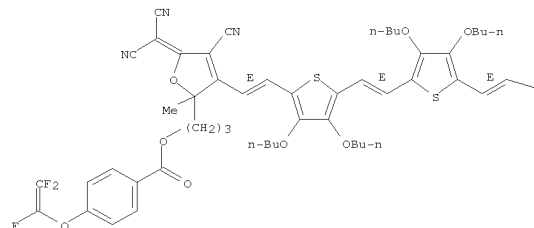
CM 1



CM 2

Double bond geometry as shown.

PAGE 1-A

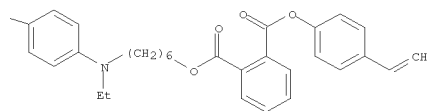


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

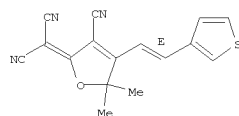
PAGE 1-B



10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(3-thienyl)ethenyl]-
2(5H)-furanlydene]-
MF C16 H11 N3 O S

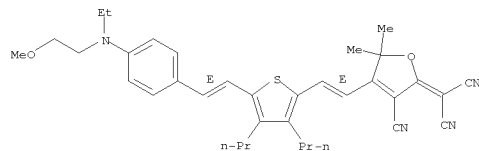
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

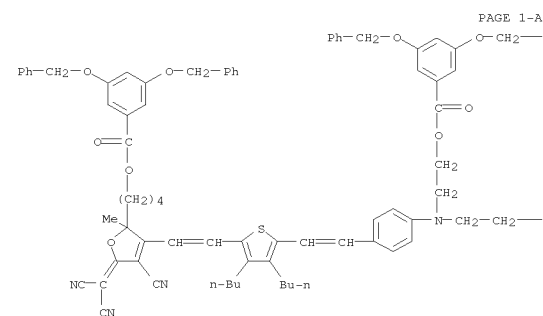
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dipropyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C35 H40 N4 O2 S

Double bond geometry as shown.



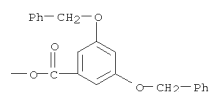
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis(phenylmethoxy)-, [[4-[2-[5-[2-[4-[[3,5-bis(phenylmethoxy)benzoyl]oxy]butyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
MF C102 H96 N4 O13 S



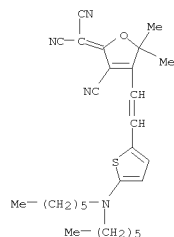
PAGE 1-B

— Ph



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-(diethylamino)-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C28 H36 N4 O S

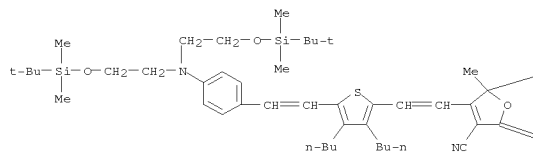


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furanlydene]-
 MF C51 H76 N4 O4 S Si2
 CI CCM

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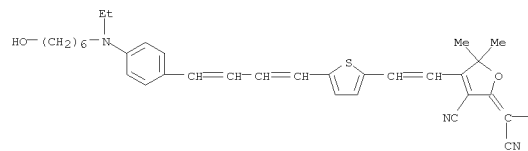
HO-(CH₂)₄-OH



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
 MF C34 H36 N4 O2 S

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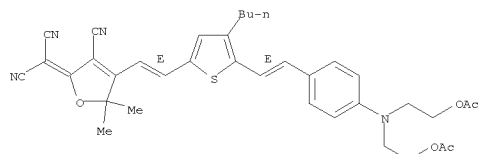


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-CN

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

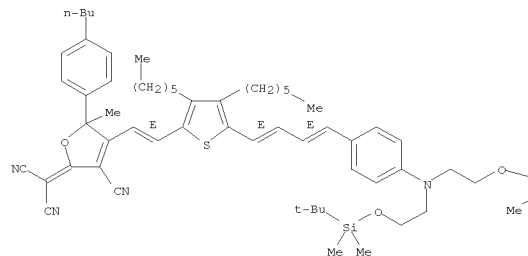
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-4-butyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
 MF C36 H38 N4 O5 S
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E,3E)-4-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]-1,3-butadien-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-(4-butylphenyl)-3-cyano-5-methyl-2(5H)-furanlydene]-
 MF C63 H90 N4 O3 S Si2
 Double bond geometry as shown.

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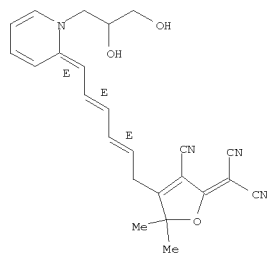


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-6-[1-(2,3-dihydroxypropyl)-
2(1H)-pyridinylidene]-2,4-hexadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]-
MF C24 H24 N4 O3

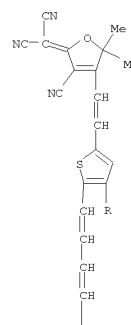
Double bond geometry as shown.



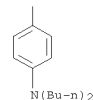
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[(2-ethylhexyl)oxy]-, [5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-3-thienyl)methyl ester
MF C58 H74 N4 O5 S

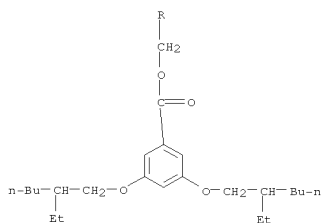
PAGE 1-A



PAGE 2-A



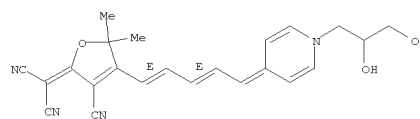
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PAGE 3-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E)-5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlylidene]-
MF C23 H22 N4 O3

Double bond geometry as shown.

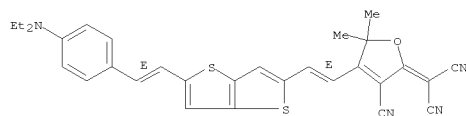


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
MF C30 H26 N4 O S2

Double bond geometry as shown.



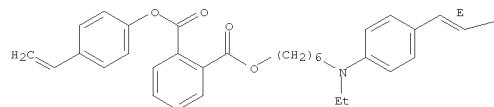
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid,
1-[6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] 2-(4-ethenylphenyl) ester
MF C97 H98 F6 N4 O15 S2
CI COM

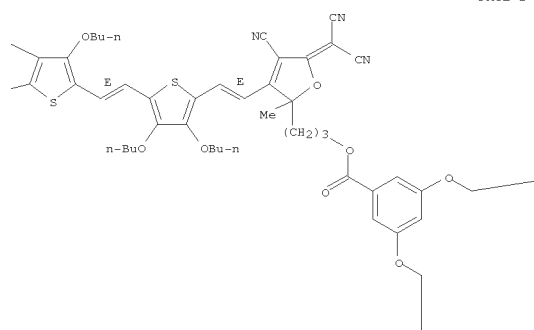
Double bond geometry as shown.

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n-BuO

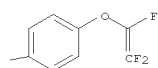


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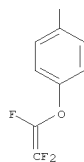


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-C



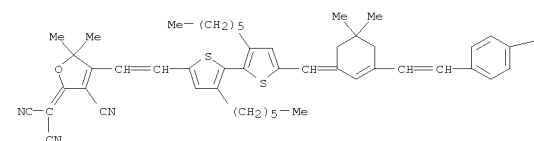
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5'-[[3-[2-[4-(dimethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-3,3'-diethyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
MF C51 H60 N4 O S2

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NMe2

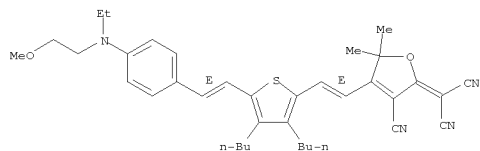
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[(1E)-2-[3,4-dibutyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-

MF C37 H44 N4 O2 S

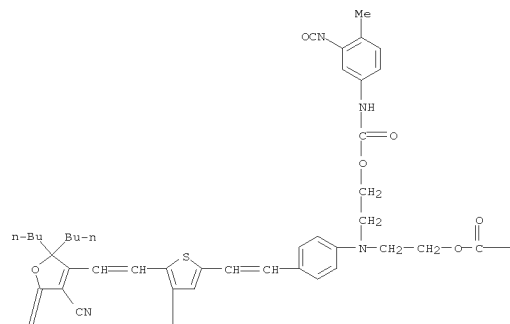
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

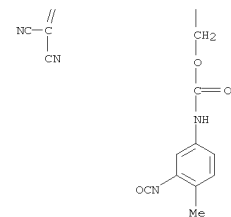
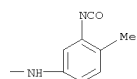
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Carbamic acid, (3-isocyanato-4-methylphenyl)-, [[4-[2-[5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-4-[[[(3-isocyanato-4-methylphenyl)amino]carbonyl]oxy]methyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
MF C62 H58 N10 O10 S
CI CCM

PAGE 1-A



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

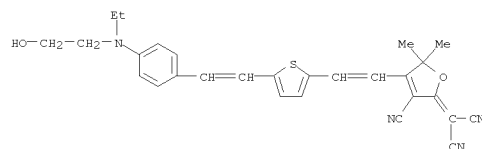
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-

MF C28 H26 N4 O2 S



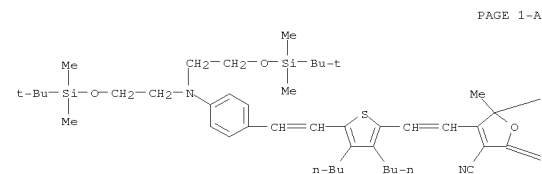
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

PAGE 2-A

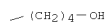
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L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [4-[2-[5-[2-[4-[bis[2-[(1,1-
dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-
thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furanlylidene]-,
polymer with 2,4-disubstitoanilo-1-methylbenzene and
2,2',2''-nitritoltris[ethanol] (9C1)
MF (C51 H76 N4 O4 S S12 . C9 H6 N2 O2 . C6 H15 N O3)x
CI
FMS

```

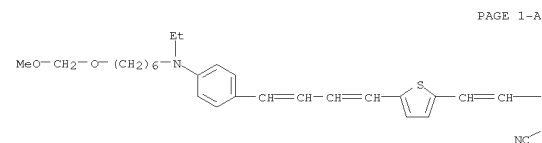


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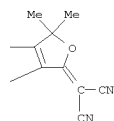


CM 2

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-ethyl-6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]-
MF C36 H40 N4 O3 S

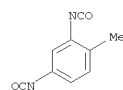


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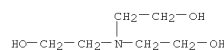


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



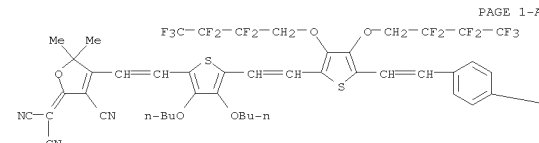
CM 3



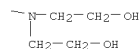
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L61 132 ANSWERS      EGISTRY  COPYRIGHT 2010 ACS on STN
IN  Propanenitrile, 2-[4-[2-[5-[2-[4-bis(2-
    hydroxyethyl)amino]phenyl]ethenyl]-3,4-bis(2,2,3,3,4,4,4-
    heptafluorobutoxy)-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-
    cyano-5,5-dimethyl-2(5H)-furanylidene]-
MF  C50 H48 F14 N4 O7 S2

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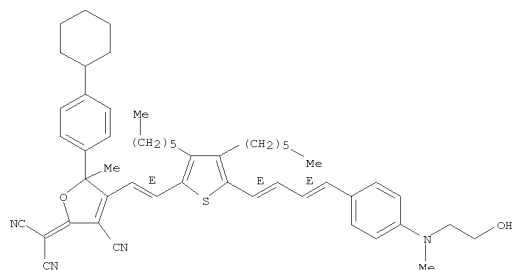


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E)-2-[3,4-dihexyl-
 5-[(1E,3E)-4-[4-[(2-hydroxyethyl)methylamino]phenyl]-1,3-butadien-1-yl]-2-
 thienyl]ethenyl]-5-methyl-2(5H)-furylidene]-
 MF C52 H62 N4 O2 S

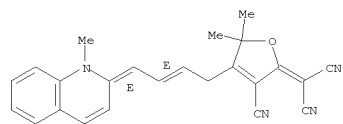
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E)-4-(1-methyl-2(1H)-
 quinolinylidene)-2-buten-1-yl]-2(5H)-furylidene]-
 MF C24 H20 N4 O

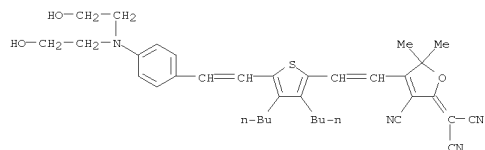
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

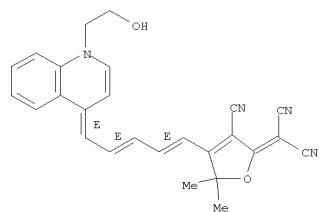
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 [4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-
 3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-,
 homopolymer (9Cl)
 MF (C36 H42 N4 O3 S)x
 CI PMS

CM 1



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,3E,5E)-5-[1-(2-hydroxyethyl)-4(1H)-
 quinolinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C26 H22 N4 O2

Double bond geometry as shown.

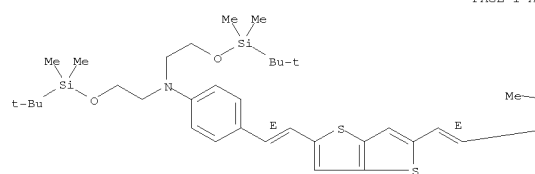


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

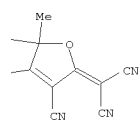
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-
MF C42 H54 N4 O3 S2 S12

Double bond geometry as shown.



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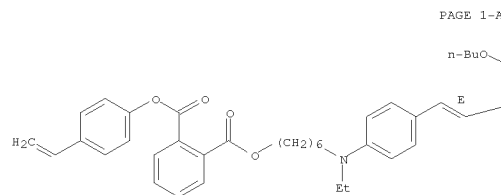


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid, 6-[[[4-[(1E)-2-[5-[(1E)-2-[2-[3-[[[3,5-bis[[4-[(trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 4-ethenylphenyl ester, polymer with 4-ethenylphenyl 4-[(trifluoroethenyl)oxy]benzoate (9CI)
MF (C97 H98 F6 N4 O15 S2 . C17 H11 F3 O3)x
CI PMS

CM 1

Double bond geometry as shown.

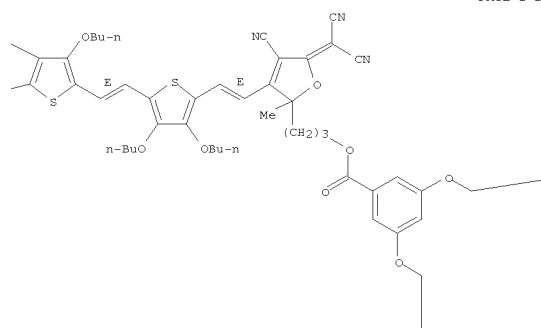


PAGE 1-A

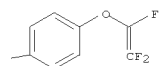
n-BuO

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B

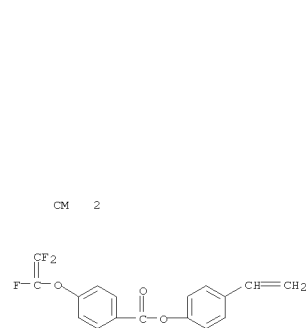


PAGE 1-C

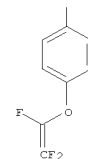


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-B

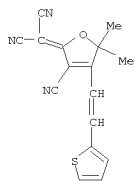


CM 2



10560670.trn

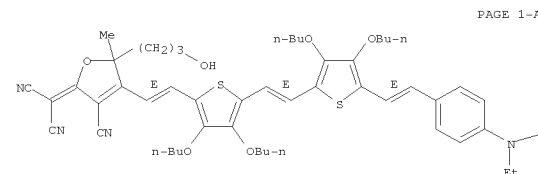
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2-(2-thienyl)ethenyl)-2(5H)-
furanylidene]-
MF C16 H11 N3 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

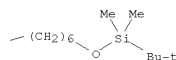
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-
furanylidene]-
MF C62 H88 N4 O7 S2 Si

Double bond geometry as shown.



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PAGE 1-B

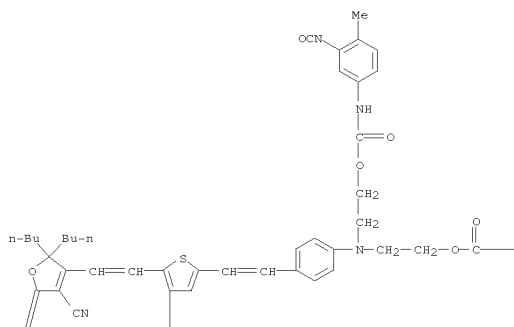


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Carbamic acid, (3-isocyanato-4-methylphenyl)-,
[[4-[2-[5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-4-[[[(3-isocyanato-4-methylphenyl)amino]carbonyl]oxy[methyl]-2-thienyl]ethenyl]phenyl]imino]di-
2,1-ethanediyl ester, polymer with 2,4-diisocyanato-1-methylbenzene and
2,2',2''-nitrilotris[ethanol] (9CI)
MF (C62 H58 N10 O10 S . C9 H6 N2 O2 . C6 H15 N O3)x
CI PMS

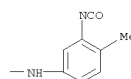
CM 1

PAGE 1-A

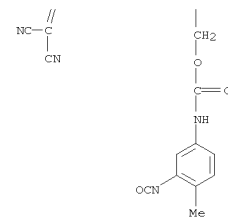


L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

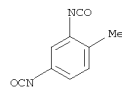
PAGE 1-B



PAGE 2-A



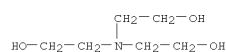
CM 2



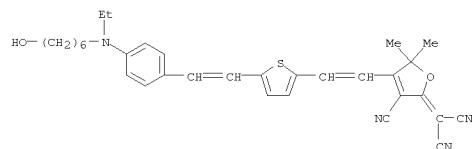
CM 3

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C32 H34 N4 O2 S

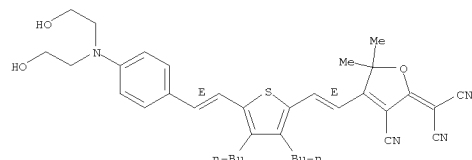


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-

hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C36 H42 N4 O3 S
CI CCM

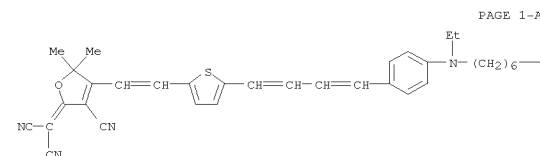
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

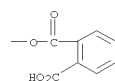
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[5-[2-[4-cyano-5-

(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester
MF C42 H40 N4 O5 S
CI CCM



PAGE 1-A

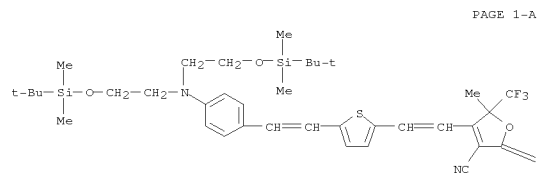
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5-methyl-5-(trifluoromethyl)-2(5H)-furanilydene]-
MF C40 H51 F3 N4 O3 S S12



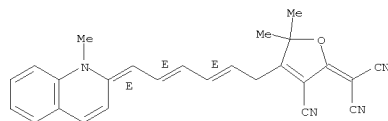
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-6-(1-methyl-2(1H)-quinolinyldiene)-2,4-hexadien-1-yl]-2(5H)-furanilydene]-
MF C26 H22 N4 O

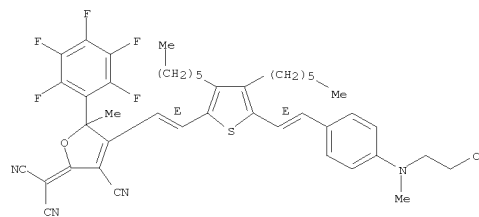
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dihexyl-5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(2,3,4,5,6-pentafluorophenyl)-2(5H)-furanilydene]-
MF C44 H45 F5 N4 O2 S

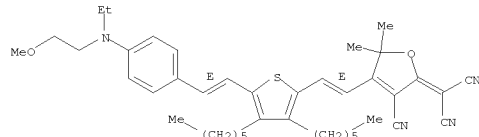
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanilydene]-
MF C41 H52 N4 O2 S

Double bond geometry as shown.

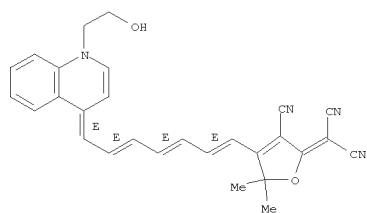


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[(1E,3E,5E,7E)-7-[1-(2-hydroxyethyl)-4(1H)-
quinolinylidene]-1,3,5-heptatrien-1-yl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C28 H24 N4 O2

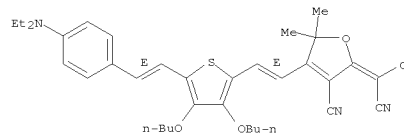
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(
diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C36 H42 N4 O3 S

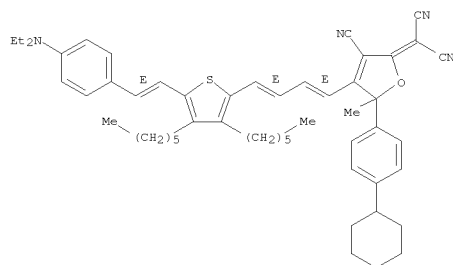
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

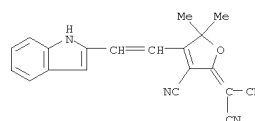
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E,3E)-4-[5-[(1E)-
2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
yl]-5-methyl-2(5H)-furanylidene]-
MF C53 H64 N4 O S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-(1H-indol-2-yl)ethenyl]-5,5-dimethyl-
2(5H)-furanylidene]-
MF C20 H14 N4 O



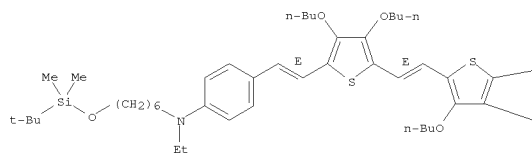
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

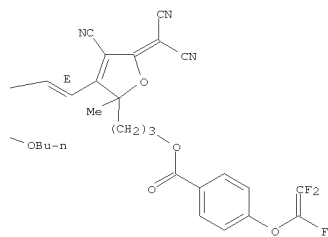
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS ON STN
IN Benzoic acid, 4-[(1,2,2-trifluoroethoxy)ethyl]-
3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
[[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl
2-methylethyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-
methyl-2-furanyl]propyl ester
MF C71 H91 F3 N4 O9 S2 Si2

Double bond geometry as shown.

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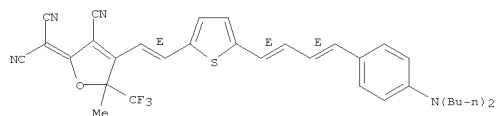
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

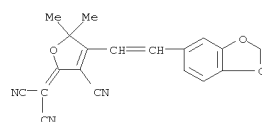
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L61 132 ANSWERS  REGISTRY  COPYRIGHT 2010 ACS on STN
IN  Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-
    (diethylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-
    (trifluoromethyl)-2(5H)-furan-2-ylidene]-
MF  C34 H33 F3 N4 O S
```

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

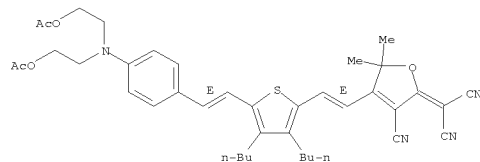
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-{2-(1,3-benzodioxol-5-yl)ethenyl}-3-cyano-5,5-
dimethyl-2(5H)-furanlydene]-
MF C19 H13 N3 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
(acetyloxy)ethyl]amino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-
cyano-5,5-dimethyl-2(5H)-furanlylidene]-
MF C40 H46 N4 O5 S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

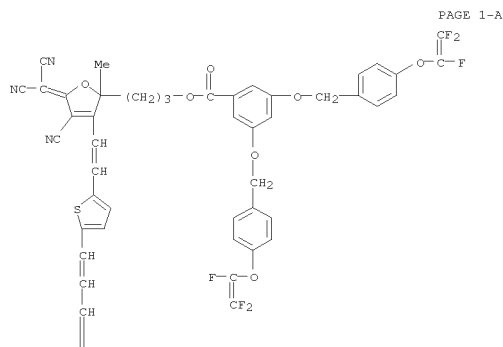
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Phenol, 4-ethenyl-, homopolymer,
6-[[4-[4-[5-[2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl)methoxy]benzoyl]oxy]propyl]-4-cyano-5-

(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate
4-[(1,2,2-trifluoroethenyl)oxy]benzoate

MF C69 H58 F6 N4 O11 S . x C9 H5 F3 O3 . x (C8 H8 O)x

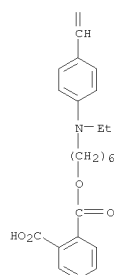
CM 1



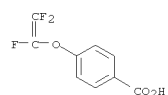
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

PAGE 2-A

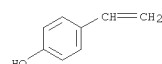


CM 2



CM 3

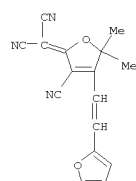
CM 4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[3-cyano-4-[2-(2-furanyl)ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C16 H11 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

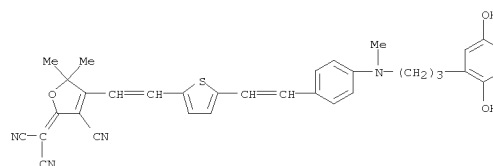
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[[3-(2,5-

dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]-

MF C34 H30 N4 O3 S

CI CCM

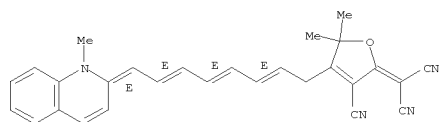


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

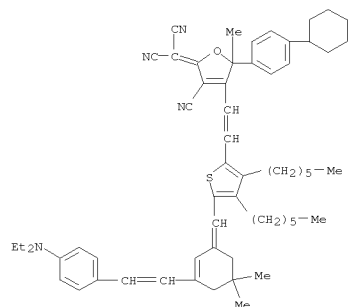
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-8-(1-methyl-
2(1H)-quinolinyldiene)-2,4,6-octatrien-1-yl]-2(5H)-furanylidene]-
MF C28 H24 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

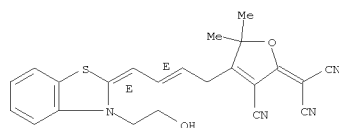
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[[3-[2-[4-(
(diethylamino)phenyl]ethenyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-
3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furanylidene]-
MF C60 H74 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[3-(2-hydroxyethyl)-2(3H)-
benzothiazolylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C23 H20 N4 O2 S

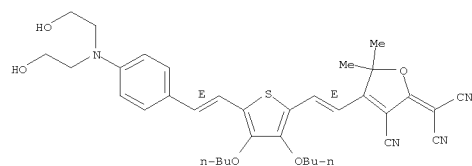
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-
5,5-dimethyl-2(5H)-furanylidene]-
MF C36 H42 N4 O5 S

Double bond geometry as shown.

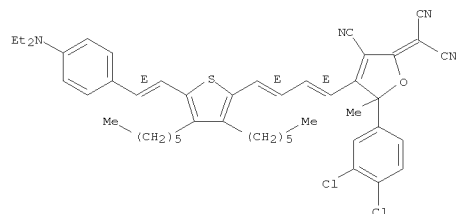


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5-(3,4-dichlorophenyl)-4-[(1E,3E)-4-[5-[(1E)-
 2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
 yl]-5-methyl-2(5H)-furanylidene]-
 MF C47 H52 Cl2 N4 O S

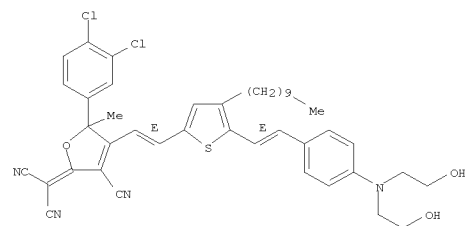
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
 hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-
 (3,4-dichlorophenyl)-5-methyl-2(5H)-furanylidene]-
 MF C43 H46 Cl2 N4 O3 S
 CI CCM

Double bond geometry as shown.

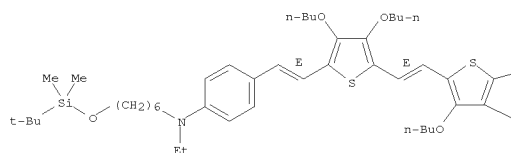


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

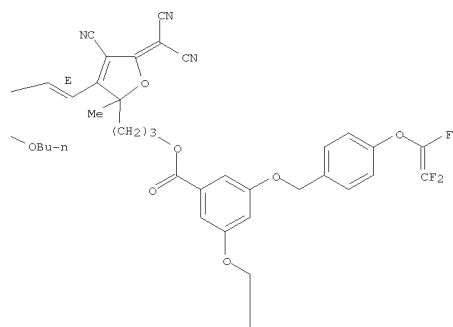
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-,
 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
 [[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl
]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-
 methyl-2-furanyl]propyl ester
 MF C87 H102 F6 N4 O12 S2 Si

Double bond geometry as shown.

PAGE 1-A

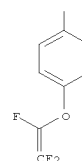


PAGE 1-B



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

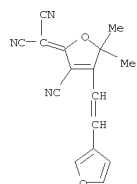
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

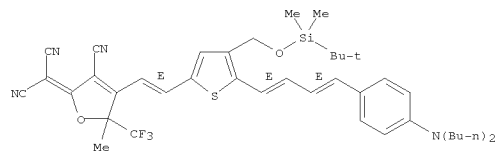
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-(3-furanyl)ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]-
MF C16 H11 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(
dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-
dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-(
trifluoromethyl)-2(5H)-furanylidene]-
MF C41 H49 F3 N4 O2 S Si

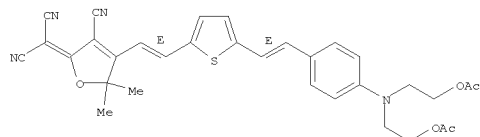
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis[2-(
acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-
dimethyl-2(5H)-furanylidene]-
MF C32 H30 N4 O5 S

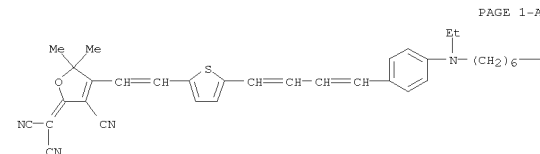
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

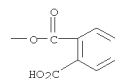
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer, benzoate
6-[[4-[4-[5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-
furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl
1,2-benzenedicarboxylate
MF C42 H40 N4 O5 S . x (C8 H8 O)x . x C7 H6 O2

CM 1

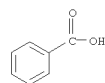


PAGE 1-A

PAGE 1-B

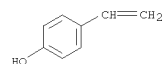


CM 2



CM 3

CM 4

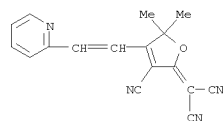


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-
furanylidene]-
MF C17 H12 N4 O

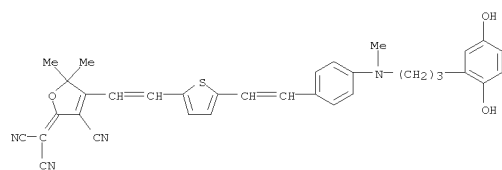


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

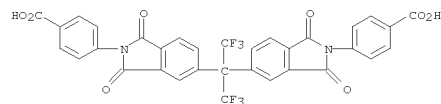
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid,
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethyldiene]bis(1,3-
dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)]bis-, polymer with
[3-cyano-4-[2-[5-[2-[4-[3-(2,5-
dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furanylidene]propanedinitrile (9CI)
MF (C34 H30 N4 O3 S . C33 H16 F6 N2 O8)x
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

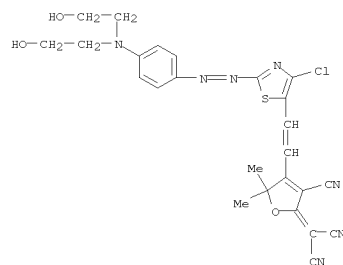


CM 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[2-[2-[bis(2-
hydroxyethyl)amino]phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-
5,5-dimethyl-2(5H)-furanylidene]-
MF C25 H22 Cl N7 O3 S

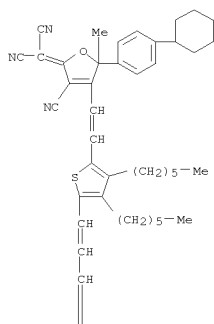


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

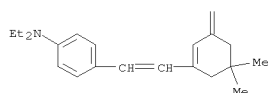
10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[3-[2-[4-(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furanylidene]-
MF C62 H76 N4 O S

PAGE 1-A



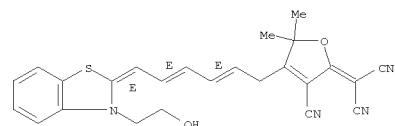
PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-6-[3-(2-hydroxyethyl)-2(3H)-benzothiazolylidene]-2,4-hexadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C25 H22 N4 O2 S

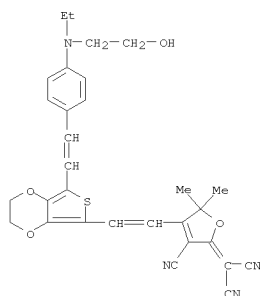
Double bond geometry as shown.



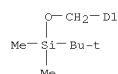
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [3-cyano-4-[(1E)-2-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-7-[(1E)-2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (9CI)
MF C37 H44 N4 O5 S Si
CI IDS

PAGE 1-A

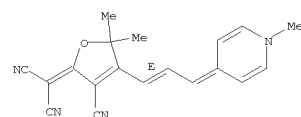


PAGE 2-A



L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-3-(1-methyl-4(1H)-pyridinylidene)-1-propen-1-yl]-2(5H)-furanylidene]-
MF C19 H16 N4 O

Double bond geometry as shown.

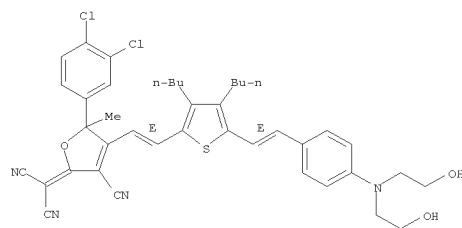


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanilydene]-
 MF C41 H42 Cl2 N4 O3 S

Double bond geometry as shown.

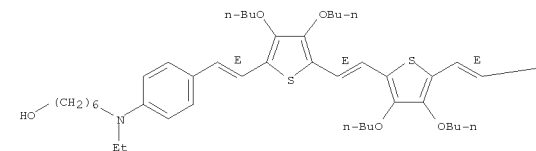


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

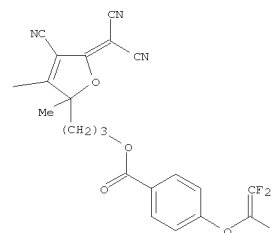
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 4-[(1,2,2-trifluoroethenyl)oxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester
 MF C65 H77 F3 N4 O9 S2

Double bond geometry as shown.

PAGE 1-A

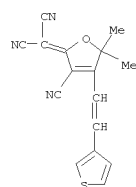


PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

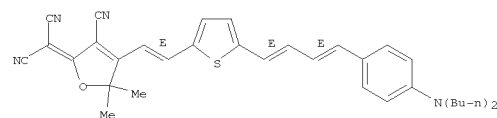
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[2-(3-thienyl)ethenyl]-2(5H)-furanilydene]-
 MF C16 H11 N3 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-Furanilydene]-
 MF C34 H36 N4 O S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

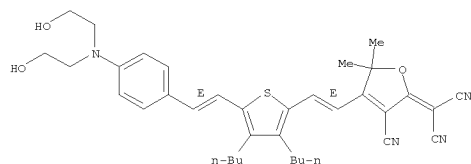
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-

hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-
5,5-dimethyl-2(5H)-furanlydene]-, polymer with
1,3-diisocyanatomethylbenzene (9CI)
MF (C36 H42 N4 O3 S . C9 H6 N2 O2)x
CI PMS

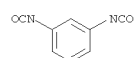
RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

Double bond geometry as shown.



CM 2

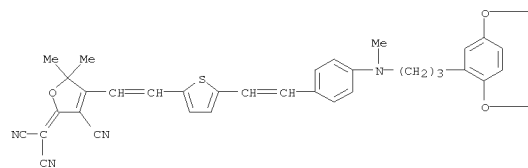


D1-Me

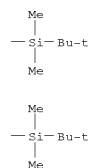
L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[[3-[2,5-bis[(1,1-

dimethylethyl)dimethylsilyl]oxy]phenyl]propyl]methylamino]phenyl]ethenyl]-
2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C46 H58 N4 O3 S Si2

PAGE 1-A

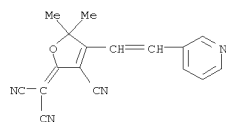


PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(3-pyridinyl)ethenyl]-2(5H)-
furanlydene]-
MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41
L58 471 S FULL L53 SUB=L41
L59 424 S L58 NOT L42
L60 471 S L58 NOT 45
L61 132 S L60 AND ED<=2004

=> s l61 not l45
L62 131 L61 NOT L45

=> s l61 not l42
L63 118 L61 NOT L42

=> file caplus
FILE 'CAPLUS' ENTERED AT 16:23:30 ON 07 JUN 2010
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L64 116 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
CC 75-8 (Crystallography and Liquid Crystals)
Section cross-reference(s): 22, 27, 73
TI A non-linear optical chromophore. 2-[3-cyano-4-((E)-(5-[4-(diethylamino)styryl]thiophen-2-yl)vinyl)-5,5-dimethylfuran-2-(5H)-ylidene]propanedinitrile
ST mol structure cyanodiethylaminostyrylthiophenylvinyl methylfuranylidene propanedinitrile nonlinear optical material; crystal structure
IT Nonlinear optical materials
(crystal structure
of [cyano(((diethylamino)styryl]thiophenyl)vinyl)dimethylfuranylidene]propanedinitrile)
IT Crystal structure
Molecular structure
(of
[cyano(((diethylamino)styryl]thiophenyl)vinyl)dimethylfuranylidene]propanedinitrile)
IT 729612-75-3
RL: PRP (Properties)
(crystal and mol. structure of)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L64 116 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN
CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 36
TI Near-infrared optical-absorption behavior in high-beta nonlinear optical chromophore-polymer guest-host materials. II. Dye spacer length effects
in an amorphous polycarbonate copolymer host
ST near IR nonlinear optical dye homologous series polycarbonate host
IT Electrooptical absorption
(IR; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Dipole moment
(difference between ground and excited state; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Free energy
(excess, and inhomogeneous peak width; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Polycarbonates, properties
RL: PRP (Properties)
(host; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Molecular structure-property relationship
(inhomogeneous width vs. dye alkyl spacer length; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Thermodynamic activity
(interaction coefficient vs. loss-concentration slope; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Cyanine dyes
Homologous series
(near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT IR absorption
(near-IR overtone; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Molar volume
Solubility
(vs. dye alkyl spacer length; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT Henry's law
(vs. loss-concentration slope; near-IR optical-absorption behavior in

L64 116 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT 473796-78-0, LMCO 4H6m 676256-53-4, LMCO 4E6m 676256-54-5, LMCO 4P6m 676256-55-6, LMCO 4B6m
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(dopant; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)
IT 132721-26-7, Bisphenol A-carbonic acid-3,3,5-trimethylcyclohexanebisphenol copolymer
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(polymer host; near-IR optical-absorption behavior in high- β nonlinear optical chromophore-polymer guest-host materials and dye spacer length effects in an amorphous polycarbonate copolymer host)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MERO CYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41
L58 471 S FULL L53 SUB=L41
L59 424 S L58 NOT L42
L60 471 S L58 NOT 45
L61 132 S L60 AND ED<=2004
L62 131 S L61 NOT L45
L63 118 S L61 NOT L42

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L64 116 S L63

=> s l64 and pd<=2003
 23988064 PD<=2003
 (PD<=20039999)
L65 53 L64 AND PD<=2003

=> file reg
FILE 'REGISTRY' ENTERED AT 16:24:06 ON 07 JUN 2010
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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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L4 FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

L5 FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
TRA L4 1- RN : 172 TERMS

L6 FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

L13 0 S ELECTROPTIC CHROMOPHORES

L14 27 S ELECTROOPTIC CHROMOPHORES

L15 11072 S ELECTROOPTIC

L16 660 S L15 AND CHROMOPHORE

L17 679 S L12 OR L14 OR L16

L18 FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
269403 S C6N/RF

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010

L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010

L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010

L43 20 S L42

FILE 'REGISTRY' ENTERED AT 16:12:09 ON 07 JUN 2010

L44 0 S L41 AND C2NS/RF
L45 19 S L41 AND C3NS/RF
L46 0 S L41 AND C3NSE/RF
L47 0 S L41 AND C3SEN/RF
L48 0 S L41 AND SE/ELS
L49 0 S L41 AND SE/ES

10560670.trn

FILE 'CAPLUS' ENTERED AT 16:23:30 ON 07 JUN 2010
L64 116 S L63
L65 53 S L64 AND PD<=2003

FILE 'REGISTRY' ENTERED AT 16:24:06 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:24:12 ON 07 JUN 2010
L66 TRA L65 1- RN : 627 TERMS

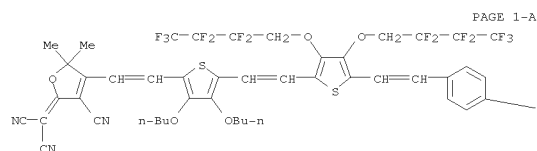
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L67 627 SEA L66

=> s 167 and 164
L68 95 L67 AND L64

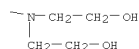
=> d scan

10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethylamino)phenyl]ethenyl]-3,4-bis(2,2,3,3,4,4,4-heptafluorobutoxy)-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C50 H48 F14 N4 O7 S2



PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

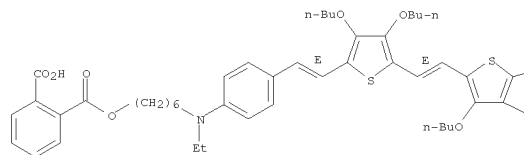
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer,
6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate 4-[(trifluoroethenyl)oxy]benzoate (9CI)
MF C89 H92 F6 N4 O15 S2 . x C9 H5 F3 O3 . x (C8 H8 O)x

CM 1

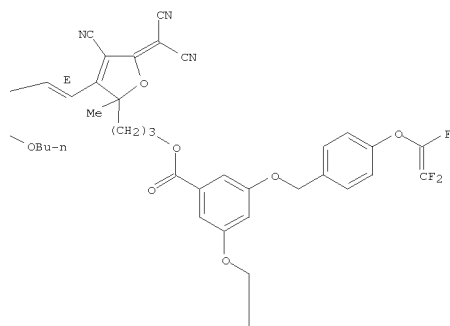
Double bond geometry as shown.

PAGE 1-A

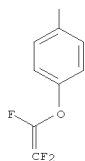


L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

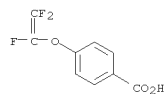
PAGE 1-B



PAGE 2-B



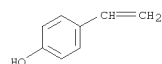
CM 2



CM 3

CM 4

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



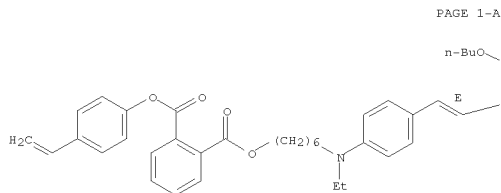
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid, 6-[[[4-[(1E)-2-[5-[(1E)-2-[2-[3-
 [[3,5-bis[[4-[(trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-
 cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-
 dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-
 thienyl]ethenyl]phenyl]ethylamino]hexyl 4-ethenylphenyl ester, polymer
 MF with 4-ethenylphenyl 4-[(trifluoroethenyl)oxy]benzoate (9CI)
 CI (C97 H98 F6 N4 O15 S2 . C17 H11 F3 O3)x
 PMS

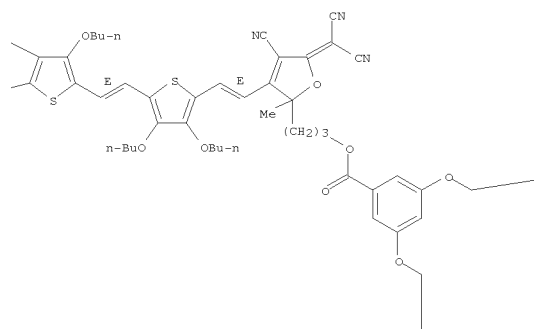
CM 1

Double bond geometry as shown.

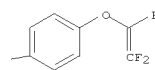


L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B

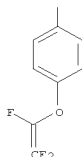


PAGE 1-C

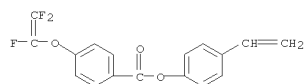


L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-B



CM 2

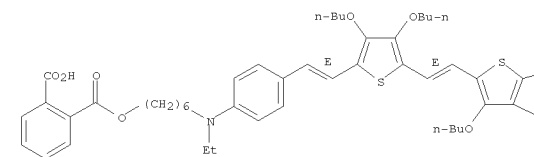


HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

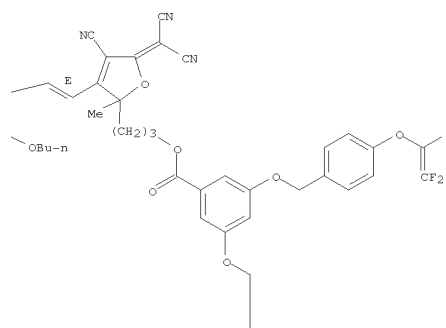
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid,
 1-[6-[[[4-[(1E)-2-[5-[(1E)-2-[2-[3-
 [[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl-
 1]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-
 3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-
 thienyl]ethenyl]phenyl]ethylamino]hexyl] ester
 MF C89 H92 F6 N4 O15 S2
 CI CCM

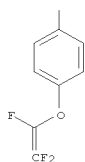
Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



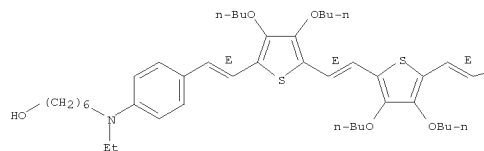


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

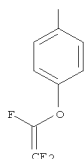
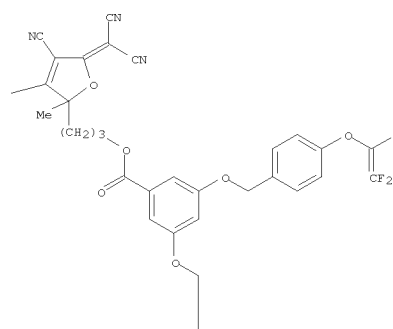
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

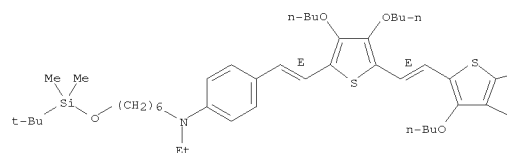


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

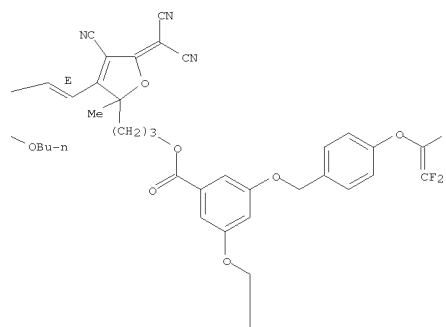
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

Double bond geometry as shown.

PAGE 1-A



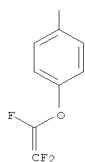
PAGE 1-B



10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

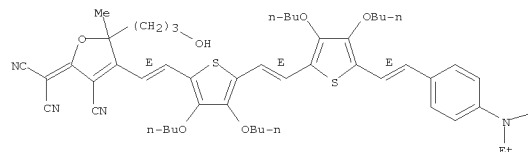
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furan-2-ylidene]-

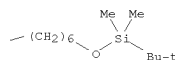
MF C62 H88 N4 O7 S2 Si

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

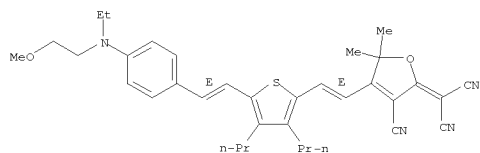
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dipropyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-

MF C35 H40 N4 O2 S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

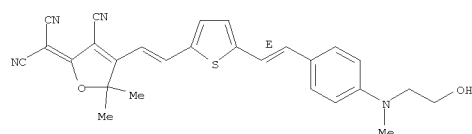
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-

MF C27 H24 N4 O2 S

Double bond geometry as described by E or Z.



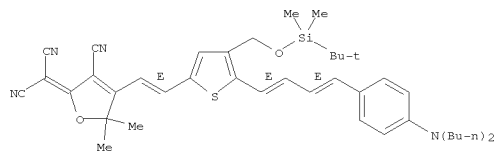
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(
dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-
dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-
2(5H)-furanlydene]-
MF C41 H52 N4 O2 S Si

Double bond geometry as shown.

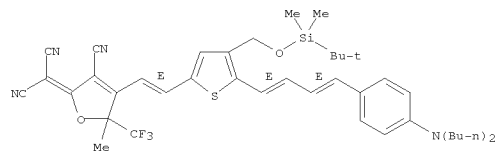


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(
dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-
dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-(
trifluoromethyl)-2(5H)-furanlydene]-
MF C41 H49 F3 N4 O2 S Si

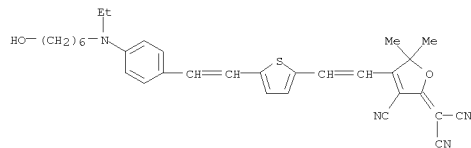
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

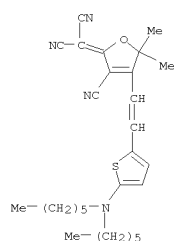
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-
hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
furanlydene]-
MF C32 H34 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[2-[5-(diethylamino)-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furanlydene]-
MF C28 H36 N4 O S



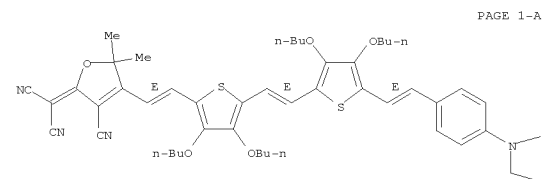
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlydene]-
MF C50 H62 N4 O7 S2

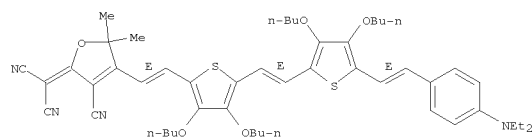
Double bond geometry as shown.



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L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C50 H62 N4 O5 S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

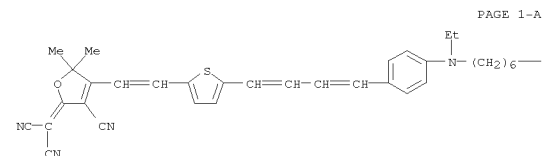
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1



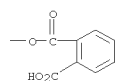
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

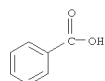
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer, benzoate
6-[[4-[4-[5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl
1,2-benzenedicarboxylate
MF C42 H40 N4 O5 S . x (C8 H8 O)x . x C7 H6 O2
CM 1



PAGE 1-B

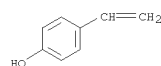


CM 2



CM 3

CM 4

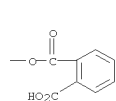
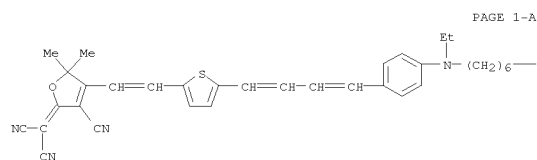


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

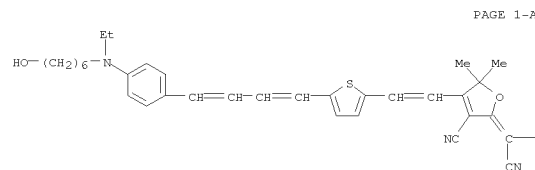
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[4-[5-[2-[4-cyano-5-(
(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-
1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester
MF C42 H40 N4 O5 S
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]-
MF C34 H36 N4 O2 S



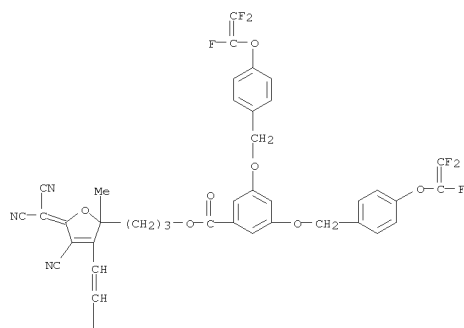
PAGE 1-B

—CN

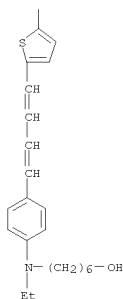
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furanyl]propyl ester
MF C61 H54 F6 N4 O8 S



PAGE 2-A



L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

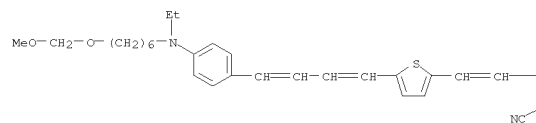
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

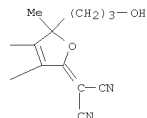
L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl[6-

(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-
5-(3-hydroxypropyl)-5-methyl-2(5H)-furanylidene]-
MF C38 H44 N4 O4 S

PAGE 1-A



PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

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FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MERO CYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

FILE 'REGISTRY' ENTERED AT 16:12:09 ON 07 JUN 2010
L44 0 S L41 AND C2NS/RF
L45 19 S L41 AND C3NS/RF
L46 0 S L41 AND C3NSE/RF
L47 0 S L41 AND C3SEN/RF
L48 0 S L41 AND SE/ELS
L49 0 S L41 AND SE/ES
L50 0 S L41 AND C2NO/RF

FILE 'CAPLUS' ENTERED AT 16:13:19 ON 07 JUN 2010
L51 10 S L45
L52 STRUCTURE UPLOADED
S L52

FILE 'REGISTRY' ENTERED AT 16:16:10 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:16:10 ON 07 JUN 2010
L53 STRUCTURE UPLOADED
S L53

FILE 'REGISTRY' ENTERED AT 16:17:35 ON 07 JUN 2010
L54 23 S L53

FILE 'CAPLUS' ENTERED AT 16:17:36 ON 07 JUN 2010
L55 48 S L54

FILE 'REGISTRY' ENTERED AT 16:17:41 ON 07 JUN 2010

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L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41
L58 471 S FULL L53 SUB=L41
L59 424 S L58 NOT L42
L60 471 S L58 NOT 45
L61 132 S L60 AND ED<=2004
L62 131 S L61 NOT L45
L63 118 S L61 NOT L42

FILE 'CAPLUS' ENTERED AT 16:23:30 ON 07 JUN 2010

L64 116 S L63
L65 53 S L64 AND PD<=2003

FILE 'REGISTRY' ENTERED AT 16:24:06 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:24:12 ON 07 JUN 2010

L66 TRA L65 1- RN : 627 TERMS

FILE 'REGISTRY' ENTERED AT 16:24:25 ON 07 JUN 2010

L67 627 SEA L66
L68 95 S L67 AND L64

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:26:07 ON 07 JUN 2010

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FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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=> d l65 cbib abs hitstr 1-

10560670.trn

YOU HAVE REQUESTED DATA FROM 53 ANSWERS - CONTINUE? Y/(N):y

10560670.trn

L65 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2004:802620 Document No. 141:3040080 Fluorinated pi-bridge second order
nonlinear optical chromophores and electro-optic devices therefrom.
Huang, Diyun (Lumera Corporation, USA). U.S. Pat. Appl. Publ. US
20040192942 A1 20040930, 20 pp., Cont.-in-part of U.S. Ser. No. 301,978.
(English). CODEN: USXXCO. APPLICATION: US 2004-757375 20040114.
PRIORITY: US 2002-301978 20021122; US 2001-932831 20010817; US
2000-226267P 20000817.

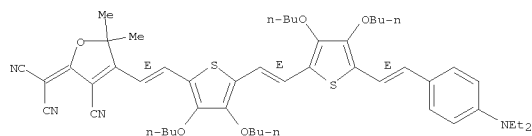
AB Nonlinear optical chromophores are described by the general formula
D- π -A (π = a π bridge including a thiophene ring having oxygen
atoms bonded directly to the 3 and 4 positions of the thiophene ring; D =
a donor; A = an acceptor; and the oxygen atoms are further substituted
with a fluorinated group comprising ≥ 3 fluorines). Second order
nonlinear optical comps. comprising a polymer matrix and the
chromophores

are also described. Electrooptical devices (e.g., optical modulators,
optical switches, and optical directional couplers) and (e.g.,
optically-assisted) phased array radar systems are described which employ
the comps.

IT 540777-74-0P 540777-78-4P
RI: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(fluorinated pi-bridge nonlinear optical chromophores and comps. and
electrooptical devices using them)

RN 540777-74-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

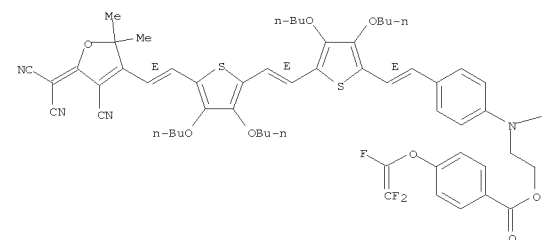


RN 540777-78-4 CAPLUS
CN Benzoic acid, 4-[(trifluoroethenyl)oxy]-,
[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-
(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-
thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediy ester
(9CI) (CA INDEX NAME)

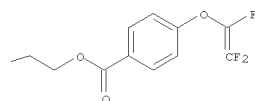
Double bond geometry as shown.

L65 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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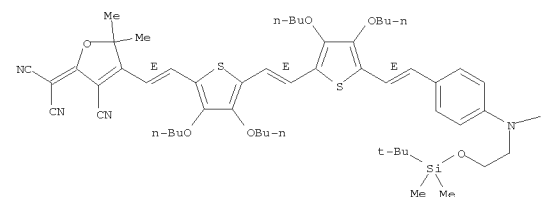
IT 540777-76-2P 540777-77-3P
RI: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(fluorinated pi-bridge nonlinear optical chromophores and comps. and
electrooptical devices using them)

RN 540777-76-2 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-bis[2-[(1,1-
dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-
thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-
2(5H)-furanylidene]- (CA INDEX NAME)

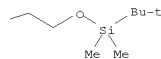
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L65 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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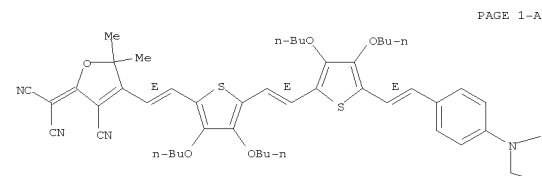


PAGE 1-B



RN 540777-77-3 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-bis[2-(2-
hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-
dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]-
(CA INDEX NAME)

Double bond geometry as shown.



L65 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

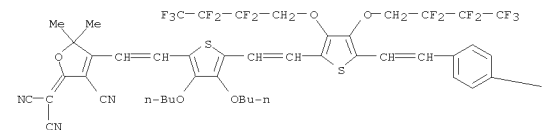
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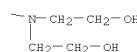
IT 765317-91-7P
RI: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(fluorinated pi-bridge nonlinear optical chromophores and comps. and
electrooptical devices using them)

RN 765317-91-7 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[5-[2-[4-bis[2-(2-
hydroxyethyl)amino]phenyl]ethenyl]-3,4-bis[2,2,3,3,4,4,4-
heptafluorobutoxy]-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-
cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

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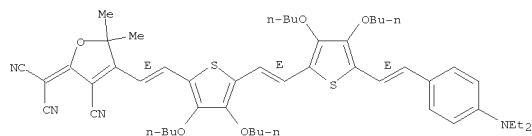
PAGE 1-B



10560670.trn

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2004:550794 Document No. 141:106890 Polymers having pendant nonlinear optical chromophores and electro-optic devices made from them. Huang, Diyun; Chen, Baoquan (Lumera Corporation, USA). U.S. Pat. Appl. Publ. US 20040132960 A1 20040708, 23 pp., Cont.-in-part of U.S. Ser. No. 395,610. (English). CODEN: USXXCO. APPLICATION: US 2003-625371 20030723. PRIORITY: US 2003-395610 20030324; US 2002-301978 20021122; US 2001-932831 20010817; US 2000-226267P 20000817.
 AB The invention relates to a nonlinear optical chromophore having the formula D- π -A, wherein π is a π bridge including a thiophene ring having oxygen atoms bonded directly to the 3 and 4 positions of the thiophene ring, D is a donor, and A is an acceptor, and comps. that include a linear polymer and the chromophore as a pendant group.
 IT 540777-74-0P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chromophores; polymers having pendant nonlinear optical chromophores and electro-optic devices made from them)
 RN 540777-74-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

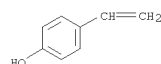
Double bond geometry as shown.



IT 718636-99-8P 718637-00-4P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polymers having pendant nonlinear optical chromophores and electro-optic devices made from them)
 RN 718636-99-8 CAPLUS
 CN Phenol, 4-ethenyl-, homopolymer, 6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate 4-[(trifluoroethenyl)oxy]benzoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 701235-61-2
 CMF C73 H81 F3 N4 O12 S2

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

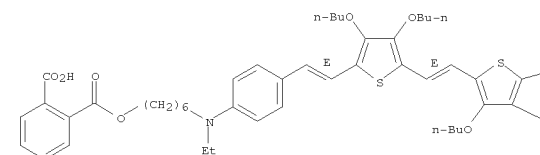
CM 3
 CRN 24979-70-2
 CMF (C8 H8 O)x
 CCI PMS
 CM 4
 CRN 2628-17-3
 CMF C8 H8 O



RN 718637-00-4 CAPLUS
 CN Phenol, 4-ethenyl-, homopolymer, 6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[3,5-bis[[4-[(trifluoroethenyl)oxy]benzoyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate 4-[(trifluoroethenyl)oxy]benzoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 701235-63-4
 CMF C89 H92 F6 N4 O15 S2

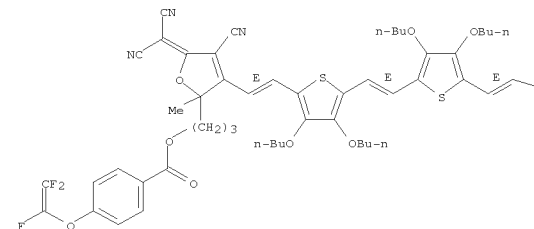
Double bond geometry as shown.

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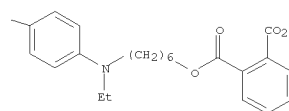


L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 Double bond geometry as shown.

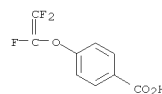
PAGE 1-A



PAGE 1-B

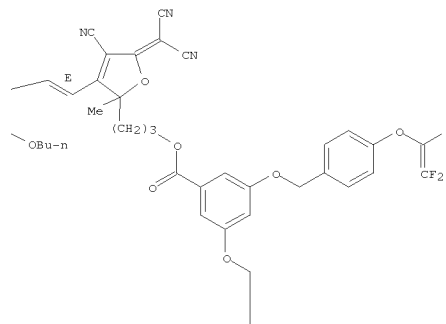


CM 2
 CRN 134151-66-9
 CMF C9 H5 F3 O3

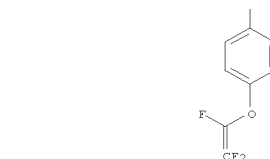


L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

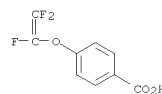
PAGE 1-B



PAGE 2-B



CM 2
 CRN 134151-66-9
 CMF C9 H5 F3 O3



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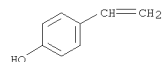
L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

CM 3

CRN 24979-70-2
CMF (C8 H8 O)x
CCI PMS

CM 4

CRN 2628-17-3
CMF C8 H8 O



IT 540777-76-2P 540777-77-3P 540777-78-4P
701235-51-0P 701235-53-2P 701235-55-4P
701235-57-6P 701235-59-8P 701235-61-2P
701235-63-4P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);

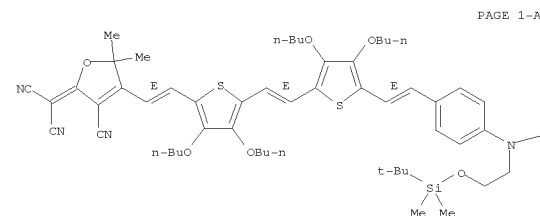
RACT

(Reactant or reagent)
(polymers having pendant nonlinear optical chromophores and
electro-optic devices made from them)

RN 540777-76-2 CAPLUS

CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.



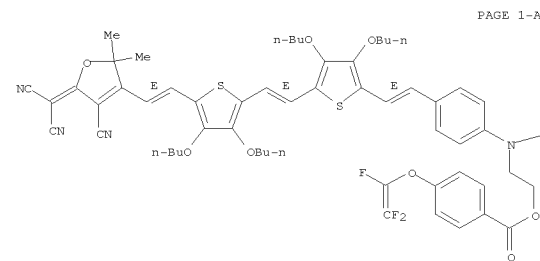
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L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

RN 540777-78-4 CAPLUS

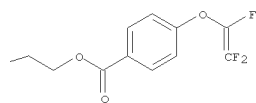
CN Benzoic acid, 4-[(trifluoroethenyl)oxy]-, [[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediy ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.



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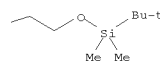


RN 701235-51-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[(6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

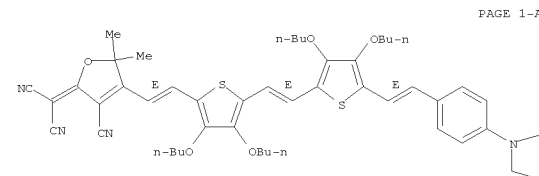
PAGE 1-B



RN 540777-77-3 CAPLUS

CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.



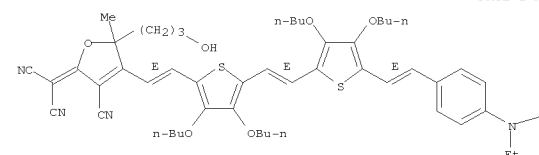
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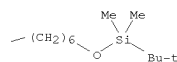


L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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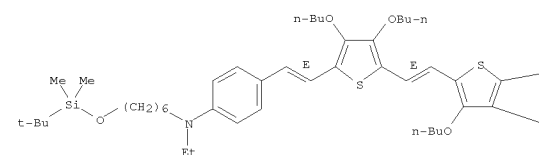


RN 701235-53-2 CAPLUS

CN Benzoic acid, 4-[(1,2,2-trifluoroethenyl)oxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.

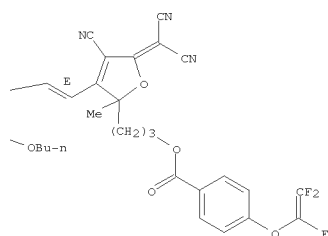
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L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

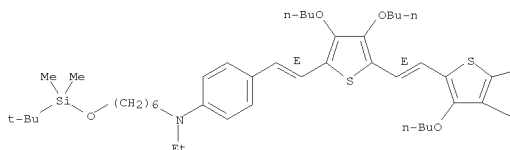
PAGE 1-B



RN 701235-55-4 CAPLUS
CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

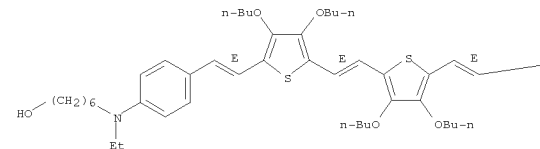
Double bond geometry as shown.

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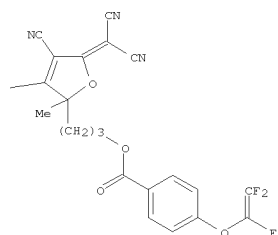


L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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PAGE 1-B

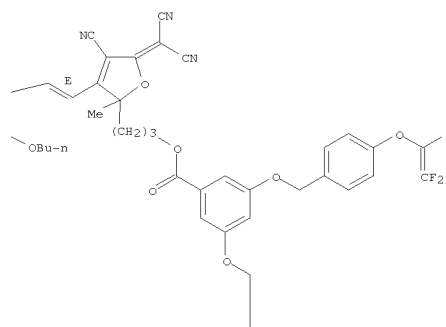


RN 701235-59-8 CAPLUS
CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

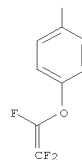
Double bond geometry as shown.

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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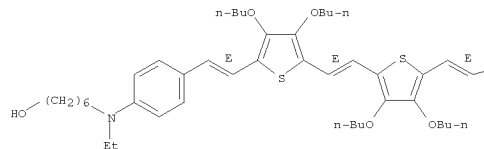


RN 701235-57-6 CAPLUS
CN Benzoic acid, 4-[(1,2,2-trifluoroethenyl)oxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

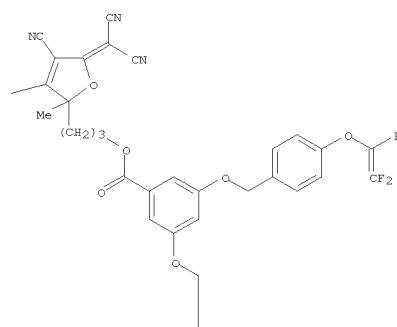
Double bond geometry as shown.

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

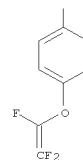
PAGE 1-A



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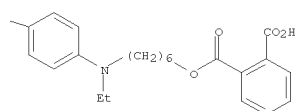
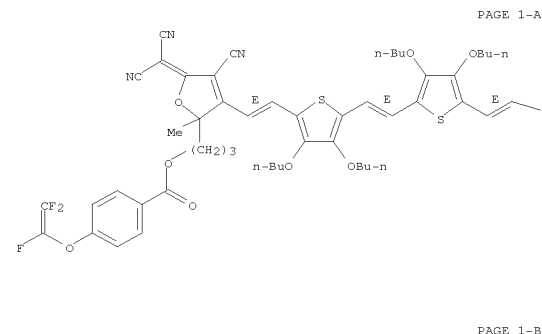
PAGE 2-B



10560670.trn

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 RN 701235-61-2 CAPLUS
 CN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(1,2,2-trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

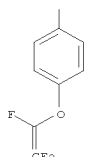
Double bond geometry as shown.



RN 701235-63-4 CAPLUS
 CN 1,2-Benzenedicarboxylic acid,
 1-[6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-

L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

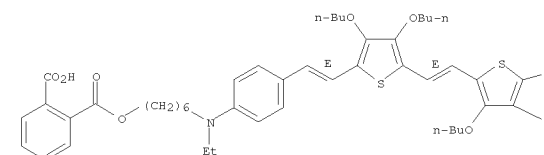
PAGE 2-B



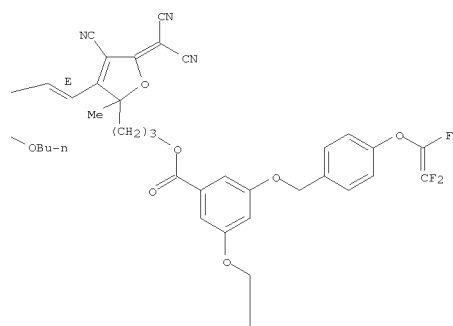
L65 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

Double bond geometry as shown.

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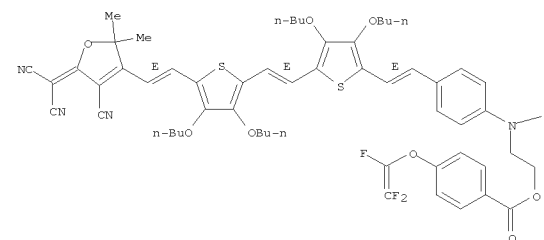
PAGE 1-B



L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2004:471043 Document No. 141:44659 Second order nonlinear optical chromophores, polymers, and electro-optic devices. Huang, Diyun; Chen, Baoquan (Lumera Corporation, USA). PCT Int. Appl. WO 2004/048927 A2 20040610, 36 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US37180 20031119. PRIORITY: US 2002-2002/301978 20021122; US 2003-2003/625371 20030723.
 AB The invention refers to a nonlinear optical chromophore D- π -A, wherein π is a π bridge including a thiophene ring having O atoms bonded directly to the 3 and 4 positions of the thiophene ring, D is a donor, and A is an acceptor, and compns. that include a linear polymer and the chromophore as a pendant group.
 IT 540777-78-4P 701235-67-8P 701235-70-3P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (second order nonlinear optical chromophores, polymers containing same, and electro-optic devices therefrom)
 RN 540777-78-4 CAPLUS
 CN Benzoic acid, 4-[(trifluoroethenyl)oxy]-, [[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.

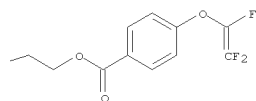
PAGE 1-A



10560670.trn

L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

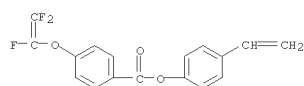
PAGE 1-B



RN 701235-67-8 CAPLUS
CN 1,2-Benzenedicarboxylic acid, 6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 4-ethenylphenyl ester, polymer with 4-ethenylphenyl 4-[(trifluoroethenyl)oxy]benzoate (9CI) (CA INDEX NAME)

CM 1

CRN 701235-66-7
CMF C17 H11 F3 O3



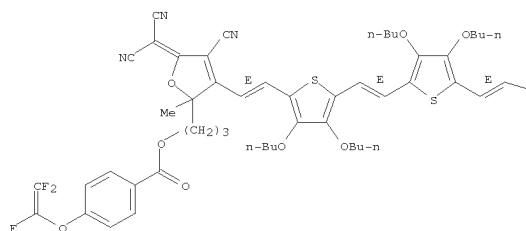
CM 2

CRN 701235-65-6
CMF C81 H87 F3 N4 O12 S2

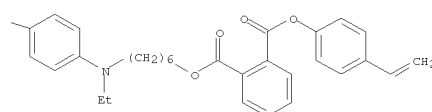
Double bond geometry as shown.

L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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RN 701235-70-3 CAPLUS
CN 1,2-Benzenedicarboxylic acid, 6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]hexyl 4-ethenylphenyl ester, polymer with 4-ethenylphenyl 4-[(trifluoroethenyl)oxy]benzoate (9CI) (CA INDEX NAME)

CM 1

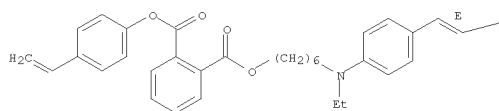
CRN 701235-69-0
CMF C97 H98 F6 N4 O15 S2

Double bond geometry as shown.

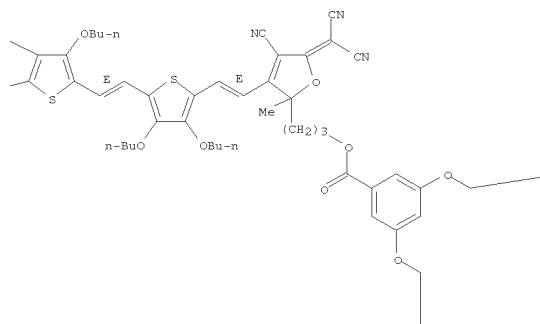
L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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n-BuO

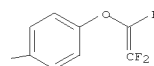


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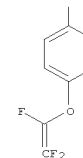


L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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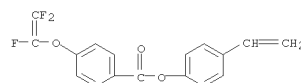


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CM 2

CRN 701235-66-7
CMF C17 H11 F3 O3

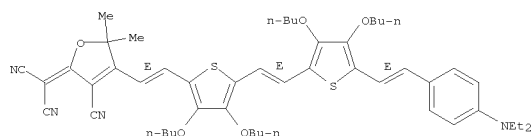


IT 540777-74-0P 540777-76-2P 540777-77-3P
701235-51-0P 701235-53-2P 701235-55-4P
701235-57-6P 701235-59-8P 701235-61-2P
701235-63-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(second order nonlinear optical chromophores, polymers containing same, and electro-optic devices therefrom)
RN 540777-74-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-

10560670.trn

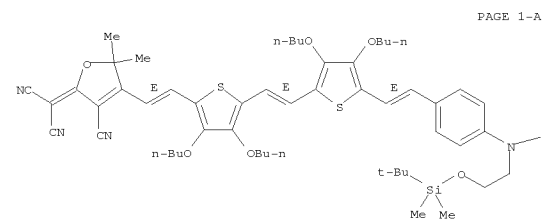
L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 540777-76-2 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

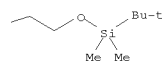
Double bond geometry as shown.



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L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

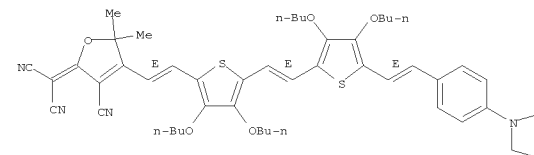
PAGE 1-B



RN 540777-77-3 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

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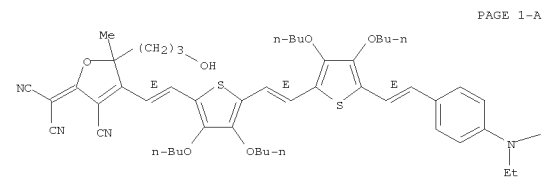
PAGE 1-B



L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

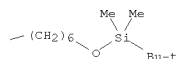
RN 701235-51-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



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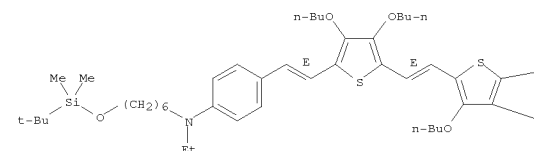


RN 701235-53-2 CAPLUS
 CN Benzoic acid, 4-[(1,2,2-trifluoroethenyl)oxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

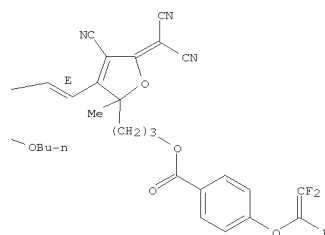
Double bond geometry as shown.

L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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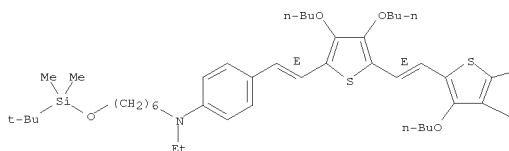
RN 701235-55-4 CAPLUS
 CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[6-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.

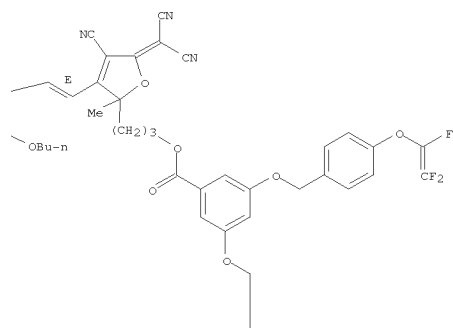
10560670.trn

L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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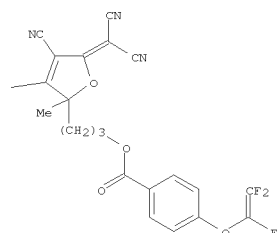


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L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

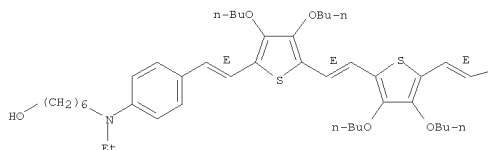
PAGE 1-B



RN 701235-59-8 CAPLUS
CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

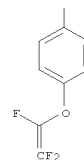
Double bond geometry as shown.

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L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

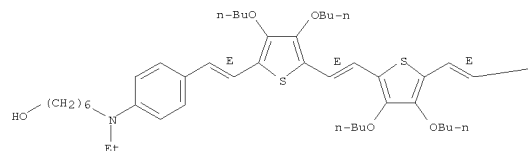
PAGE 2-B



RN 701235-57-6 CAPLUS
CN Benzoic acid, 4-[(1,2,2-trifluoroethenyl)oxy]-, 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

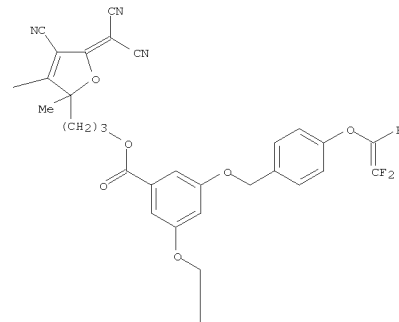
Double bond geometry as shown.

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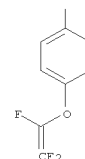


L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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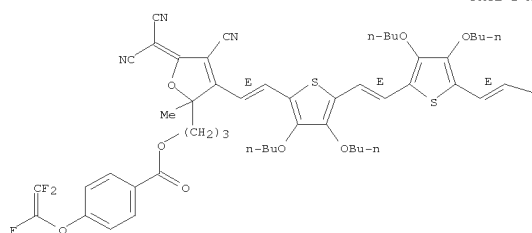
RN 701235-61-2 CAPLUS
CN 1,2-Benzenedicarboxylic acid, 1-[6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[(1,2,2-trifluoroethenyl)oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

Double bond geometry as shown.

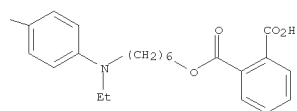
10560670.trn

L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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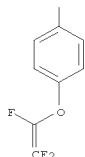


RN 701235-63-4 CAPLUS
CN 1,2-Benzenedicarboxylic acid,
1-[6-[[4-[(1E)-2-[5-[(1E)-2-[2-[3-
[[3,5-bis[[4-[(1,2,2-trifluoroethyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl-
1]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-
3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-
thienyl]ethenyl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

Double bond geometry as shown.

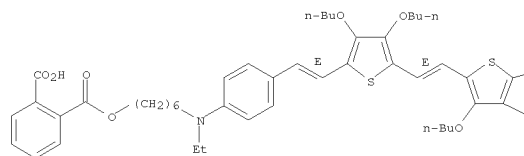
L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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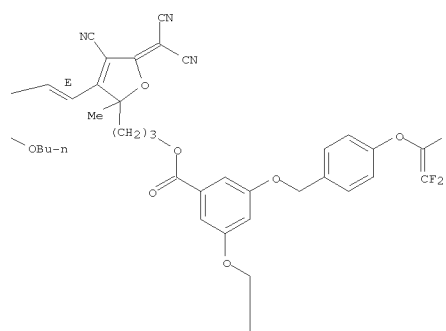


L65 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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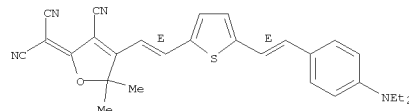


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L65 ANSWER 4 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003:970715 Document No. 141:164293 Simple reflection measurement of
nonlinear optical activity using silicon as an electrode. Haller, Marnie
A.; Lawson, Rhys; Clot, Olivier; Sherwood, Travis; Dalton, Larry; Jen,
Alex K. (Department of Materials Science and Engineering, Univ. of
Washington, Seattle, WA, 98195, USA). Proceedings of SPIE-The
International Society for Optical Engineering, 5212 (Linear and Nonlinear
Optics of Organic Materials III), 326-331 (English) 2003.
CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International
Society for Optical Engineering.
AB Future generations of photonic devices which incorporate poled organic
nonlinear optical materials may be aided by, or require the use of
non-traditional electrodes. This report details the integration of
highly doped Si as one of the poling/modulating electrodes in the simple
reflection type experiment for determination of nonlinear optical
activity in a guest-host polymer system. The measurements illustrate that the behavior
of doped-Si and the traditional In Sn oxide (ITO) electrodes are
analogous. A number of organic chromophore guests were studied as well
as multiple polymer hosts. Results demonstrate both successful poling and
subsequent modulation of NLO materials, including the calcn. of r33
values comparable to those achieved using a standard ITO electrode.
IT 729612-75-3
RL: PRP (Properties)
(simple reflection measurement of nonlinear optical activity using
silicon as electrode)
RN 729612-75-3 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-
(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
furanlidene]- (CA INDEX NAME)

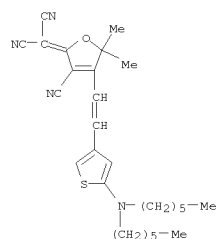
Double bond geometry as shown.



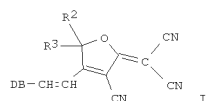
10560670.trn

L65 ANSWER 5 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:939698 Document No. 141:133276 Novel fluorophores for single-molecule
 imaging. Willets, Katherine A.; Ostroverkhova, Oksana; Hess, Stephan;
 He,
 Meng; Twieg, Robert J.; Moerner, William E. (Department of Chemistry,
 Stanford Univ., Stanford, CA, USA). Proceedings of SPIE-The
 International
 Society for Optical Engineering, 5222(Nanocrystals, and Organic and
 Hybrid
 Nanomaterials), 150-157 (English) 2003. CODEN: PSISDG. ISSN:
 0277-786X. Publisher: SPIE-The International Society for Optical
 Engineering.
 AB A new class of fluorophores has been identified that can be imaged at the
 single-mol. level and offer addnl. beneficial properties such as a
 significant ground state dipole moment, moderate hyperpolarizability, and
 sensitivity to local rigidity. These mols. contain an amine donor and a
 dicyanodihydrofuran (DCDHF) acceptor linked by a conjugated unit
 (benzene,
 thiophene, alkene, styrene, etc.) and were originally designed to deliver
 both high polarizability anisotropy and dipole moment as nonlinear
 optical
 chromophores for photorefractive applications. Surprisingly, we have
 found that these mols. are also well-suited for single-mol. fluorescence
 imaging in polymers and other reasonably rigid environments. We report
 the bulk (ensemble) and single-mol. photophys. properties measured for
 six
 dyes in this new class of single-mol. reporters, with absorption maxima
 ranging from 486 to 614 nm.
 IT 500198-25-4
 RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical
 study); USES (Uses)
 (Fluorophores based on dicyanodihydrofuran acceptors paired with amine
 donors for single-mol. imaging)
 RN 500198-25-4 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-4-[2-[5-(dihexylamino)-3-thienyl]ethenyl]-5,5-
 dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

L65 ANSWER 5 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

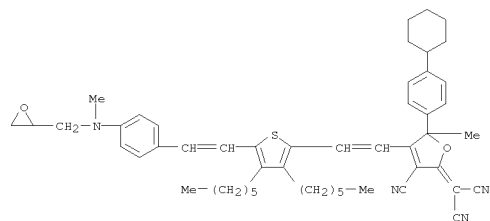


L65 ANSWER 6 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:855295 Document No. 139:3558790 Low loss electro-optic polymers and
 devices made therefrom. He, Mingqian; Shustack, Paul J.; Wang, Jianguo
 (USA). U.S. Pat. Appl. Publ. US 20030201429 A1 20031030, 21 pp.
 (English). CODEN: USXXCO. APPLICATION: US 2002-136869 20020430.
 GI



AB An electro-optic chromophore is described comprising a compound having a
 general formula I, wherein D = an electron donor having one or a
 plurality
 of terminally pendent, polymerizable cyclic ether or cyclic thioether
 groups; B = at least one bivalent aromatic ring or derivs.; and R2 and
 R3 =
 (each, independently) H, or a (un)substituted C1-C10 alkyl, a
 (un)substituted C2-C10 alkenyl, a (un)substituted aryl, a (un)substituted
 alkylaryl, a (un)substituted carbocycle, a (un)substituted heterocycle,
 or
 a (un)substituted cyclohexyl; or R2 and R3 together form a (substituted)
 ring structure. The chromophore may have nonlinear optical property and
 may be photocurable. An optical device using the chromophore is also
 described. A method of fabricating an optical or electro-optic structure
 containing a photodefinable high $\mu\beta$ chromophore layer is also
 described.
 IT 618439-10-4P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);
 RACT
 (Reactant or reagent)
 (chromophore; low loss electro-optic polymers and devices using them)
 RN 618439-10-4 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[3,4-dihexyl-5-[2-
 [4-[methyl(2-oxiranylmethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-
 methyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

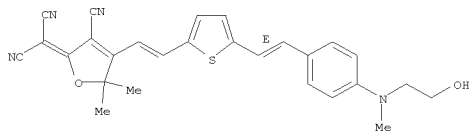
L65 ANSWER 6 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 7 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:801303 Document No. 140:17234 Novel chromophore-functionalized poly[2-(trifluoromethyl)adamantyl acrylate-methyl vinyl urethane]s with high poling stabilities of the nonlinear optical effect. Briers, David; Koeckelberghs, Guy; Picard, Isabel; Verbiest, Thierry; Persoons, Andre; Samyn, Celest (Laboratory of Macromolecular and Physical Organic Chemistry, Katholieke Universiteit Leuven, Heverlee, 3001, Belg.). Macromolecular Rapid Communications, 24(14), 841-846 (English) 2003. CODEN: MRCOE3. ISSN: 1022-1336. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB Nonlinear optical vinyl polymers with high glass transition temperature (T_g) were prepared by the functionalization of a fluorinated acrylate-Me vinyl isocyanate copolymer. A modified pathway to obtain a thiophene bridged chromophore was worked out. Poled films of the polymers show a fairly high and stable nonlinear optical response, even at elevated temps.
 IT 629649-92-9P
 RI: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (In preps. of thiophene-bridged chromophore mols. for synthesis of adamantyl- and urethane-bearing acrylate polymers having nonlinear optical effects)
 RN 629649-92-9 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as described by E or Z.



IT 629649-92-9DP, reaction product with adamantyl- and isocyanate-bearing polyacrylates and alcs.
 RI: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (synthesis of chromophore-functionalized adamantyl- and urethane-bearing acrylate polymers having nonlinear optical effects)
 RN 629649-92-9 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as described by E or Z.

L65 ANSWER 8 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:756534 Document No. 140:34537 Focused microwave-assisted synthesis of 2,5-dihydrofuran derivatives as electron acceptors for highly efficient nonlinear optical chromophores. Liu, Sen; Haller, Marnie A.; Luo, Jingdong; Jang, Sei-Hum; Ma, Hong; Dalton, Larry R.; Jen, Alex K.-Y. (Departments of Materials Science and Engineering and Chemistry, University of Washington, Seattle, WA, 98195, USA). Materials Research Society Symposium Proceedings, 771(Organic and Polymeric Materials and Devices), 375-380 (English) 2003. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB A diversified family of 2,5-dihydrofuran derivs. has been synthesized as a new class of highly efficient and tunable electron acceptors using the single-mode focused microwave irradiation High poling efficiency and very large electro-optic coeffs. (r₃₃ values of 128 and 116 pm/V at 1.3 μm) have been demonstrated using 2-dicyanomethylene-3-cyano-4,5-dimethyl-5-trifluoromethyl-2,5-dihydrofuran (CF₃-TCF)-based chromophores as dopant in poly(Me methacrylate) (PMMA) and a high glass-transition temperature polyquinoline (PQ-100) resp. Films were doped with

[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadienyl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]propanedinitrile.

Excellent dipole alignment stability has also been demonstrated in the guest/host composite at 85°C. Multi-functionalized NLO chromophores based on hydroxy containing 2,5-dihydrofuran acceptors were also synthesized through microwave methodol. for further characterizations.

IT 613237-39-1, [3-Cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadienyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]propanedinitrile
 613237-40-4, [3-Cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadienyl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]propanedinitrile
 613237-41-5, [3-Cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadienyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]propanedinitrile 613237-42-6,

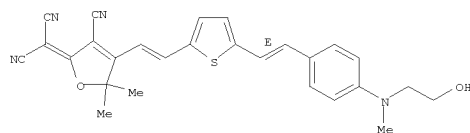
[3-Cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadienyl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]propanedinitrile

RI: PRP (Properties)
 (focused microwave-assisted synthesis of dihydrofuran derivs. as electron acceptors for highly efficient nonlinear optical chromophores)

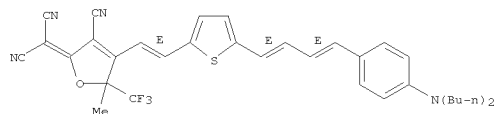
RN 613237-39-1 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

L65 ANSWER 7 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

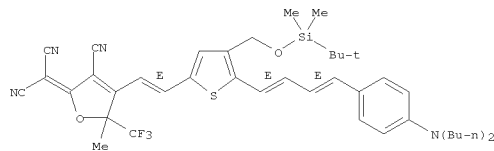


L65 ANSWER 8 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



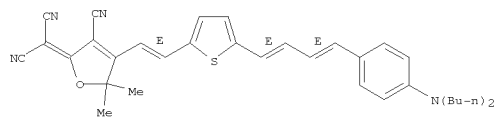
RN 613237-40-4 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 613237-41-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

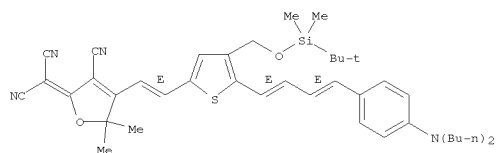


RN 613237-42-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

10560670.trn

L65 ANSWER 8 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 9 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003;632276 Document No. 140;294194 Effects of alkyl spacer group length on Vis-NIR absorption behavior in FTC-like guest-host EO polymers. Barto, Richard R., Jr.; Bedworth, Peter V.; Epstein, Joseph A.; Ermer, Susan P.; Taylor, Rebecca E.; Frank, Curtis W. (Lockheed Martin Space Systems Co., USA). Proceedings of SPIE-The International Society for Optical Engineering, 4991 (Organic Photonic Materials and Devices V), 575-588 (English) 2003. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB Spectral absorption behavior of FTC-like dyes of varying shape incorporated into amorphous polycarbonate (APC) were characterized by photothermal deflection spectroscopy. Previous Monte Carlo calcs. by Dalton and Robinson predict a strong dependence of the macroscopic nonlinear optical susceptibility on the chromophore waist:length aspect ratio in elec. field-poled films. This dependence arises from London interactions between chromophores, which are expected to influence the absorption characteristics of the composite both by changing the local polarity of the medium and through dipole interactions. It is expected that these interactions will play a role in the absorption characteristics

of unpoled films as well. Of particular interest are the spectral characteristics of the red edge of the main dye electronic absorption peak, and the fine structure in the near-IR, dominated by overtones of fundamental C-H stretching and bending modes. The spectral structure in these key regions can be influenced by inter- and intramol. interactions and conformational changes in the dye. The near-IR structure, in turn, will dictate absorption loss in optical devices prepared from these materials at key transmission wavelengths (1.3 and 1.55 μm). A homologous series of spacer lengths, ranging from Et to hexyl, attached to

an FTC-like NLO chromophore, LMC0-46M, was characterized by a combination of photothermal deflection spectroscopy (PDS) and UV-visible spectroscopy to examine the effects of the mol. environment on near-IR loss at 1090

nm,

1300 nm and 1550 nm.

IT 473796-78-0 676256-53-4 676256-54-5

676256-55-6

RL: OCU (Occurrence, unclassified); PRP (Properties); OCCU (Occurrence) (effects of alkyl spacer group length on Vis-NIR absorption behavior

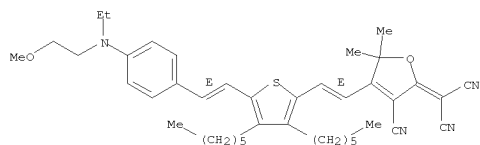
in FTC-like guest-host EO polymers)

RN 473796-78-0 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.

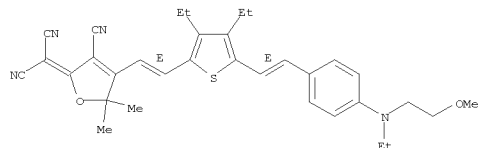
L65 ANSWER 9 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 676256-53-4 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-diethyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

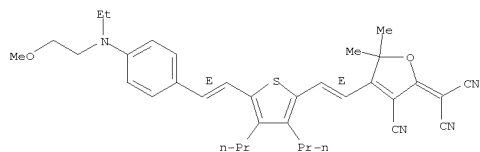
Double bond geometry as shown.



RN 676256-54-5 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dipropyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

Double bond geometry as shown.

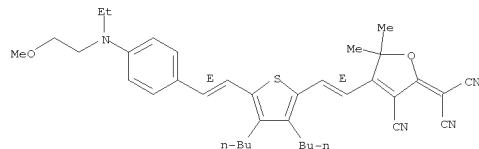


RN 676256-55-6 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlydene]- (CA INDEX NAME)

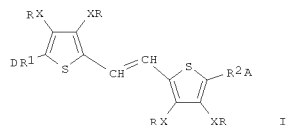
Double bond geometry as shown.

L65 ANSWER 9 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



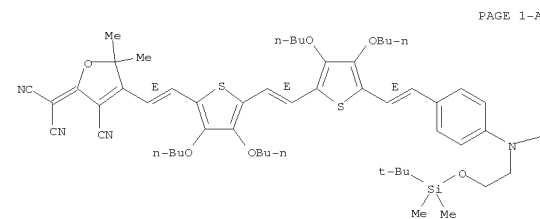
10560670.trn

L65 ANSWER 10 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:454741 Document No. 139:439920 Second order nonlinear optical
 chromophores containing a donor and an acceptor part linked by a
 π -bridge including a substituted thiophene ring; and electrooptical
 devices employing the chromophores. Huang, Diyun; Chen, Baoquan (Lumera
 Corp., USA). U.S. Pat. Appl. Publ. US 20030107027 A1 20030612,
 15 pp., Cont.-in-part of U.S. Ser. No. 932,831. (English). CODEN:
 USXKCO. APPLICATION: US 2002-301978 20021122. PRIORITY: US
 2000-PV226267
 20000817; US 2001-932831 20010817.
 GI

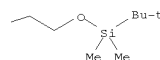


AB Nonlinear optical chromophores are described by the general formula I
 where, independently at each occurrence: R1 is absent or a π -bridge; R2
 is absent or a π -bridge; D is a donor; A is an acceptor; X is O or S;
 and R is an alkyl, aryl, heteroalkyl, or heteroaryl group. Nonlinear
 optical chromophores having the formula D- π -A are also described, where
 π is a π -bridge including a thiophene ring having O atoms bonded
 directly to the 3 and 4 positions of the thiophene ring, D is a donor,
 and
 A is an acceptor. Second order nonlinear optical comps. comprising a
 polymer matrix and the nonlinear chromophores are also discussed as are
 electrooptical devices comprising the nonlinear optical comps.
 IT 540777-76-2F 540777-77-3P
 RI: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (second-order nonlinear optical chromophores containing donor and
 acceptor parts linked by π -bridge including substituted thiophene prepared
 using)
 RN 540777-76-2 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
 dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-
 thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-
 2(5H)-furanlidene]- (CA INDEX NAME)
 Double bond geometry as shown.

L65 ANSWER 10 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



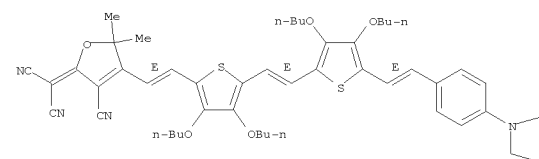
PAGE 1-B



RN 540777-77-3 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
 hydroxyethyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-
 dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-
 (CA INDEX NAME)
 Double bond geometry as shown.

L65 ANSWER 10 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



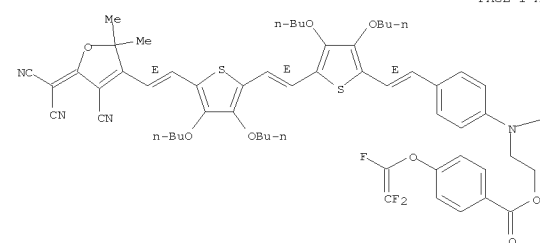
PAGE 1-B



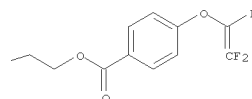
IT 540777-78-4P
 RI: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PYP (Physical process); SPN (Synthetic preparation); TEM
 (Technical or engineered material use); PREP (Preparation); PROC
 (Process); USES (Uses)
 (second-order nonlinear optical chromophores containing donor and
 acceptor parts linked by π -bridge including substituted thiophene; and
 electrooptical devices employing chromophores)
 RN 540777-78-4 CAPLUS
 CN Benzoic acid, 4-[(trifluoroethenyl)oxy]-,
 [[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-
 (dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-
 thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester
 (9CI) (CA INDEX NAME)
 Double bond geometry as shown.

L65 ANSWER 10 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



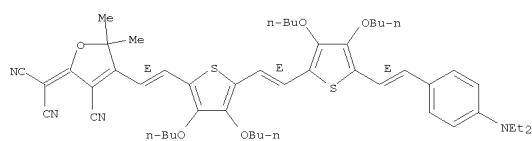
PAGE 1-B



IT 540777-74-0P
 RI: PREP (Physical, engineering or chemical process); PYP (Physical
 process); SPN (Synthetic preparation); TEM (Technical or engineered
 material use); PREP (Preparation); PROC (Process); USES (Uses)
 (second-order nonlinear optical chromophores containing donor and
 acceptor parts linked by π -bridge including substituted thiophene; and
 electrooptical devices employing chromophores)
 RN 540777-74-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
 dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-
 thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)
 Double bond geometry as shown.

10560670.trn

L65 ANSWER 10 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 11 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN

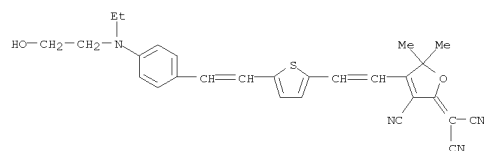
2003:421608 Document No. 139:214850 Synthesis and properties of chiral helical chromophore-functionalized polybinaphthalenes for second-order nonlinear optical applications. Koeckelberghs, Guy; Sioncke, Sonja; Verbiest, Thierry; Persoons, Andre; Samyn, Celest (Laboratory of Macromolecular and Physical Organic Chemistry, Katholieke Universiteit Leuven, Heverlee, B-3001, Belg.). Polymer, 44(14), 3785-3794 (English) 2003. CODEN: POLMAG. ISSN: 0032-3861. Publisher: Elsevier Science Ltd..

AB Chiral, helical, nonlinear optical polybinaphthalenes were prepared by covalent bonding of chromophores to the backbone of polybinaphthalenes via a Mitsunobu reaction. This was achieved in a two-step reaction, with the formation of a precursor polymer by a Suzuki coupling reaction, which was afterwards functionalized with chromophores. It was tried to achieve a chiral ordering of the chromophores by attaching them to a chiral, helical polymer backbone. Poled films of the polymers were measured for their second-harmonic generation effect and showed nonresonant nonlinear susceptibilities ($\chi_{zzz}(2)(0)$) up to 10.6 pm/V.

IT 586972-36-3DP, reaction product with chiral polybinaphthalenes 586972-37-4DP, reaction product with chiral polybinaphthalenes RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (chiral helical chromophore-functionalized polybinaphthalenes synthesis)

RN 586972-36-3 CAPLUS

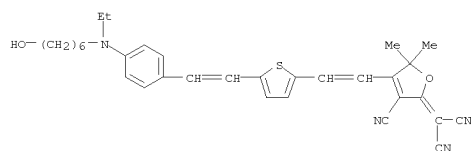
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



RN 586972-37-4 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

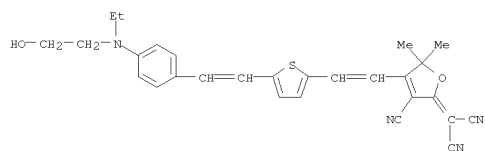
L65 ANSWER 11 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



IT 586972-36-3P 586972-37-4P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (chromophore; chiral helical chromophore-functionalized polybinaphthalenes synthesis)

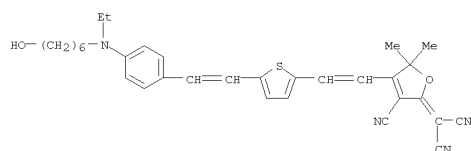
RN 586972-36-3 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



RN 586972-37-4 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



L65 ANSWER 12 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN

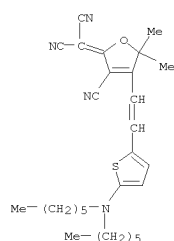
2003:402555 Document No. 139:124648 High-performance photorefractive organic glass with near-infrared sensitivity. Ostroverkhova, Oksana; Moerner, W. E.; He, Meng; Twieg, Robert J. (Department of Chemistry, Stanford University, Stanford, CA, 94305-5080, USA). Applied Physics Letters, 82(21), 3602-3604 (English) 2003. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

AB A high-performance organic glass mixture comprised of two dicyanomethylenedihydrofuran derivs. is presented. A pronounced two-beam coupling effect was observed at a wavelength of 830 nm in an unsensitized composition Sensitization with (2,4,7-trinitro-9-fluorenylidene)malononitrile (TNFM) led to a significant increase in the two-beam coupling gain coefficient, reaching a net value of .apprx.370 cm-1 at an elec. field of 45 V/ μ m at 1% TNFM, and resulted in an improvement in photorefractive speed.

IT 561291-76-7, TH-DCDHF 6V RL: PRP (Properties) (high-performance photorefractive organic glass with near-IR sensitivity and its properties)

RN 561291-76-7 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

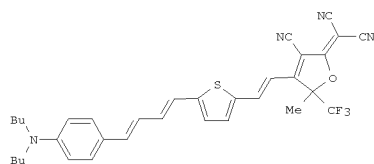


10560670.trn

L65 ANSWER 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003:338986 Document No. 139:3233820 Focused microwave-assisted synthesis of

2,5-dihydrofuran derivatives as electron acceptors for highly efficient nonlinear optical chromophores. Liu, Sen; Haller, Marnie A.; Ma, Hong; Dalton, Larry R.; Jang, Sei-Hum; Jen, Alex K.-Y. (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Advanced Materials (Weinheim, Germany), 15(7-8), 603-607 (English) 2003. CODEN: ADVMEW. ISSN: 0935-9648. OTHER SOURCES: CASREACT 139:323382. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

GI



I

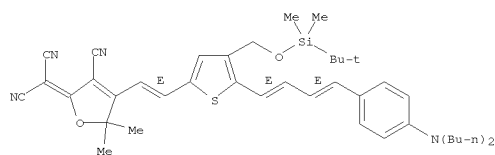
AB A very diversified family of 2,5-dihydrofuran derivs., e.g., I, was prepared as a new class of tunable electron acceptors using single-mode focused microwave irradiation. A high poling efficiency and very large r_{33} values (128 and 116 pm V⁻¹ at 1.3 μ m) were demonstrated using I in polymethyl methacrylate and a high-temperature polyquinoline (PQ-100). An excellent long-term temporal stability was demonstrated in the PQ guest/host system.

IT 613237-39-1P 613237-40-4P 613237-41-5P
RL: MOA (Modifier or additive use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(focused microwave-assisted synthesis of 2,5-dihydrofuran derivs. as electron acceptors for nonlinear optical chromophores)
RN 613237-39-1 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(di-tert-butylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]- (CA INDEX NAME)

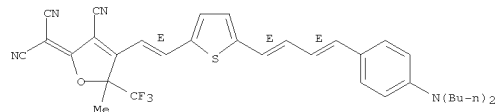
Double bond geometry as shown.

L65 ANSWER 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
dimethylethyl)dimethylsilyl]oxy)methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

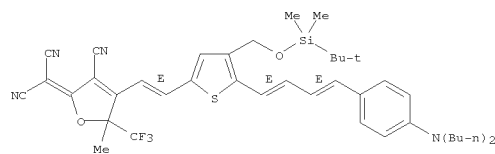


L65 ANSWER 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



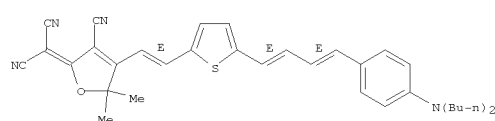
RN 613237-40-4 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(di-tert-butylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 613237-41-5 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(di-tert-butylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



IT 613237-42-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(focused microwave-assisted synthesis of 2,5-dihydrofuran derivs. as electron acceptors for nonlinear optical chromophores)
RN 613237-42-6 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,3E)-4-[4-(di-tert-butylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

L65 ANSWER 14 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003:301346 Document No. 138:322077 Crosslinkable monomers for novel nonlinear optical polymers. Yu, Luping (The University of Chicago, USA).

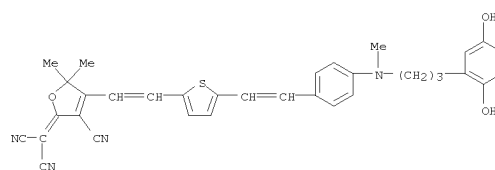
PCT Int. Appl. WO 2003032072 A2 20030417, 58 pp. DESIGNATED STATES: W; AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXDE. APPLICATION: WO 2002-US22531 20020715. PRIORITY: US 2001-PV305374 20010713.

AB Novel compns. and synthetic methods for forming nonlinear optic polymers, which may be incorporated into multiple light-based devices, are disclosed. These compns. include crosslinkable chromophoric monomer units

that incorporate nonlinear optic chromophores, linking monomers that may be used to link chromophoric monomers, and polymers made from crosslinkable chromophoric monomers or chromophoric monomers in combination with linking monomers. The polymers can exhibit high thermal stability, which is believed to arise from their covalently bonded chromophore structures. In one aspect, linking monomers are disclosed that may be crosslinked.

IT 488809-62-7P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(monomers; synthesis of crosslinkable monomers for novel nonlinear optical polymers)
RN 488809-62-7 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[[3-(2,5-

dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

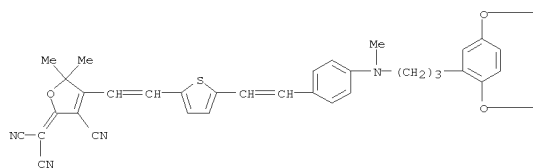


IT 511535-61-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting materials; synthesis of crosslinkable monomers for novel nonlinear optical polymers)
RN 511535-61-8 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[[3-[2,5-bis[[[1,1-dimethylethyl)dimethylsilyl]oxy]phenyl]propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-Furanylidene]- (CA INDEX NAME)

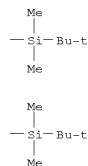
10560670.trn

L65 ANSWER 14 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
NAME)

PAGE 1-A



PAGE 1-B



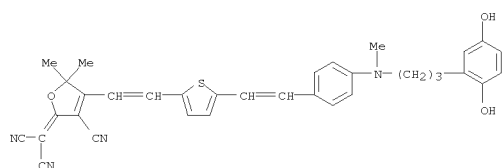
IT 488809-63-8P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
engineered material use); PREP (Preparation); USES (Uses)
(synthesis of crosslinkable monomers for novel nonlinear optical
polymers)
RN 488809-63-8 CAPLUS
CN Benzoic acid,
4,4'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethyldiene]bis(1,3-
dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)]bis-, polymer with
[3-cyano-4-[2-[5-[2-[4-[[3-(2,5-
dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furanilydene]propanedinitrile (9CI) (CA INDEX NAME)
CM 1
CRN 488809-62-7

L65 ANSWER 15 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003:58363 Document No. 138:1232760 Nonlinear optical polymers,
compositions, and their manufacture. Yu, Luping (The University of
Chicago, USA). PCT Int. Appl. WO 2003007071 A2 20030123, 66 pp.
DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,
BZ,

CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO,
RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU,
ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF,
CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML,
MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.
APPLICATION: WO 2002-US22533 20020715. PRIORITY: US 2001-FV305374
20010713.

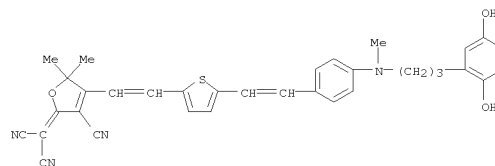
AB These compns. include chromophoric monomer units that incorporate
nonlinear optic chromophores, linking monomers that may be used to link
chromophoric monomers, and polymers made from chromophoric monomers or
chromophoric monomers in combination with linking monomers. The polymers
can exhibit high thermal stability, which is believed to arise from their
covalently bonded chromophore structures. In addition to their
covalently bonded chromophore structures, nonlinear optic polymers may be
crosslinked
to further increase the thermal and dipole stability of the polymers.

IT 488809-63-8P
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(nonlinear optical polyester polyimide manufacture and property)
RN 488809-63-8 CAPLUS
CN Benzoic acid,
4,4'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethyldiene]bis(1,3-
dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)]bis-, polymer with
[3-cyano-4-[2-[5-[2-[4-[[3-(2,5-
dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furanilydene]propanedinitrile (9CI) (CA INDEX NAME)
CM 1
CRN 488809-62-7
CMF C34 H30 N4 O3 S



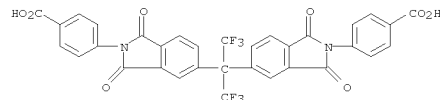
CM 2

L65 ANSWER 14 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
CMF C34 H30 N4 O3 S

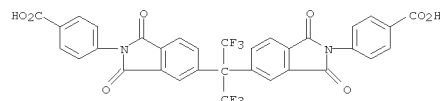


CM 2

CRN 133532-50-0
CMF C33 H16 F6 N2 O8



L65 ANSWER 15 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
CRN 133532-50-0
CMF C33 H16 F6 N2 O8



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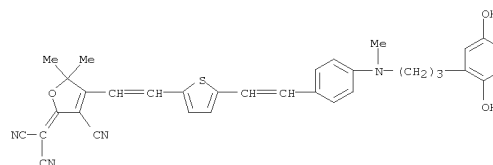
L65 ANSWER 16 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:58362 Document No. 138:128790 Novel nonlinear optical polymers incorporating amines. Yu, Luping (The University of Chicago, USA). PCT Int. Appl. WO 2003007070 A1 20030123, 68 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; R1: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US22532 20020715. PRIORITY: US 2001-305374P 20010713.
 AB Comps. for forming nonlinear optical polymers are described by the general formula X-Y-Z, (X = (R1-O-CH2-CH2-)2N-; R1 = a labile group; Y is a thiophene oligomer terminated with attached to X via a 1,4-phenylene bridge; Z = is an electron-withdrawing group; and Y and Z in combination form a nonlinear optical chromophore). Polymerization of the comps. to form polymers, the polymers formed from the comps., and electrooptical devices (e.g., phase modulators, light intensity modulators, directional couplers, optical switches, optical waveguides, and bulk devices having variable indexes of refraction) employing the polymers are also described. The polymers can exhibit high thermal stability, which is believed to arise from their covalently bonded chromophore structures.
 IT 488809-63-8P
 R1: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (nonlinear optical polymers incorporating amines and electrooptical devices using them)
 RN 488809-63-8 CAPLUS
 CN Benzoic acid,
 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diy)]bis-, polymer with [3-cyano-4-[2-[5-[2-[4-[3-(2,5-

dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]propanedinitrile (9CI) (CA INDEX NAME)

CM 1

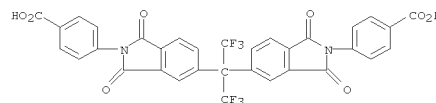
CRN 488809-62-7
 CMF C34 H30 N4 O3 S

L65 ANSWER 16 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

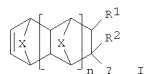


CM 2

CRN 133532-50-0
 CMF C33 H16 F6 N2 O8



L65 ANSWER 17 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:58361 Document No. 138:123275 Nonlinear optical polymers, compositions, and their manufacture. Yu, Luping (The University of Chicago, USA). PCT Int. Appl. WO 2003007069 A2 20030123, 81 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW; R1: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US22376 20020715. PRIORITY: US 2001-PV305374 20010713.
 GI



AB These comps. include chromophoric monomer units that incorporate nonlinear optic chromophores, linking monomers that may be used to link chromophoric monomers, and polymers made from chromophoric monomers or chromophoric monomers in combination with linking monomers. The polymers can exhibit high thermal stability, which is believed to arise from their covalently bonded chromophore structures. In addition to their covalently bonded chromophore structures, nonlinear optic polymers may be crosslinked to further increase the thermal and dipole stability of the polymers. Thus, monomer I having electron withdrawing group Q (3-(dicyanomethylene)-2,3-dihydrobenzo[b]thiophene) (preparation given)

was polymerized with the diacid II to give polyester polyimide having a λ_{max} 709, glass transition temperature 170°, and decomposition temperature 245°.

IT 488809-63-8P
 R1: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
 (nonlinear optical polyester polyimide manufacture and property)

RN 488809-63-8 CAPLUS

CN Benzoic acid,

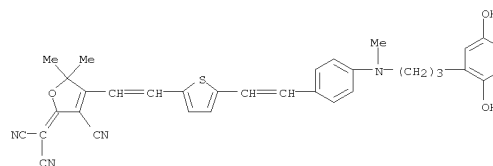
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diy)]bis-, polymer with [3-cyano-4-[2-[5-[2-[4-[3-(2,5-

dihydroxyphenyl)propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]propanedinitrile (9CI) (CA INDEX NAME)

CM 1

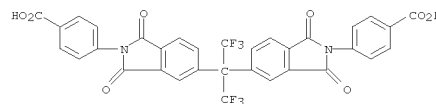
CRN 488809-62-7
 CMF C34 H30 N4 O3 S

L65 ANSWER 17 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



CM 2

CRN 133532-50-0
 CMF C33 H16 F6 N2 O8



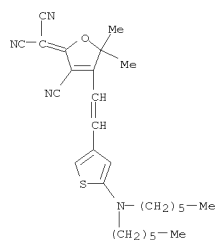
10560670.trn

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:24850 Document No. 138:214647 Novel fluorophores for single-molecule imaging. Willets, Katherine A.; Ostroverkhova, Oksana; He, Meng; Twieg, Robert J.; Moerner, W. E. (Department of Chemistry, Stanford University, Stanford, CA, 94305, USA). Journal of the American Chemical Society, 125(5), 1174-1175 (English) 2003. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.

AB Nonlinear optical chromophores based on dicyanodihydrofuran acceptors paired with amine donors exhibit sufficiently large fluorescence quantum yields and stability to enable single-mol. detection in polymeric hosts. To illustrate the breadth of this class, six fluorophores are presented, spanning the emission range from 505 to 646 nm. In contrast to conventional single-mol. fluorophores, the new mols. feature sensitivity to local rigidity, large ground-state dipole moments, and large polarizability anisotropies, properties that can be used to design new reporter expts. at the single-mol. level.

IT 500198-25-4
 RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
 (Fluorophores based on dicyanodihydrofuran acceptors paired with amine donors for single-mol. imaging)

RN 500198-25-4 CAPLUS
 CN Propanedinitrile,
 2-[3-cyano-4-[2-[5-(dihexylamino)-3-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

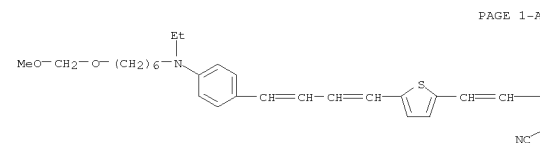


L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2003:3036 Document No. 138:255621 Design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics. Luo, Jingdong; Liu, Sen; Haller, Marnie; Liu, Lu; Ma, Hong; Jen, Alex K.-Y. (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Advanced Materials (Weinheim, Germany), 14(23), 1763-1768 (English) 2002. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB A simple and generally applicable method is developed for the post-functionalization of side-chain dendronized NLO polymers. This approach provides the combined advantages of achieving better poling efficiency through the site-isolation effect and shortening the time required for EO dendrimer synthesis. High poling efficiency has been achieved to afford an exceptionally large EO coefficient (97 pmV⁻¹ at 1.3 μm).

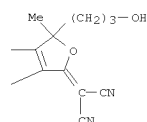
IT 502449-09-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (dendron synthesis; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics)

RN 502449-09-4 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl[6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)



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PAGE 1-B

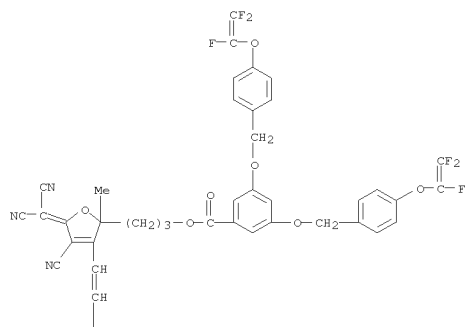


IT 502449-13-0P 502449-15-2P

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (dendron synthesis; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics)

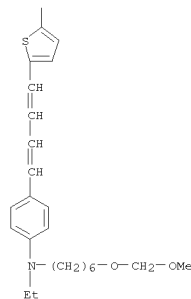
RN 502449-13-0 CAPLUS
 CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-[ethyl[6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

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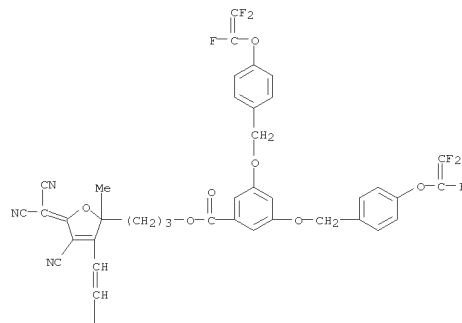
L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A



RN 502449-15-2 CAPLUS
 CN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-[ethyl[6-(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furanyl]propyl ester (CA INDEX NAME)

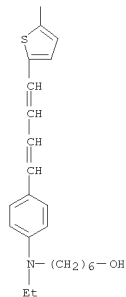
PAGE 1-A



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L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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IT 502449-17-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (dendron; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics)
 RN 502449-17-4 CAPLUS
 CN 1,2-Benzenedicarboxylic acid,
 1-[6-[[4-[[4-[5-[2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyloxy]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

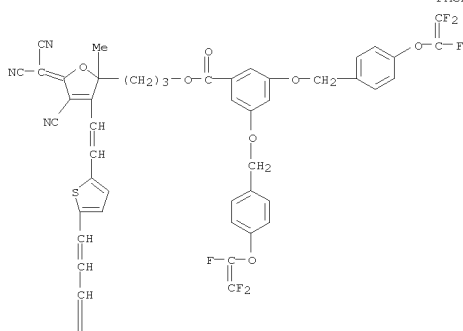
RN 502558-65-8 CAPLUS
 CN Phenol, 4-ethenyl-, homopolymer,
 6-[[4-[[4-[5-[2-[2-[3-[[3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyloxy]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl 1,2-benzenedicarboxylate
 4-[(1,2,2-trifluoroethenyl)oxy]benzoate (CA INDEX NAME)

CM 1

CRN 502449-17-4

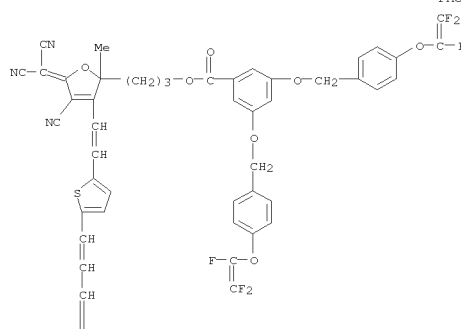
CMF C69 H58 F6 N4 O11 S

PAGE 1-A

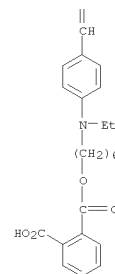


L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



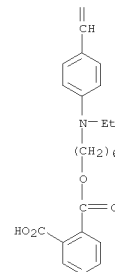
PAGE 2-A



IT 502558-65-8P 502558-70-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (design, synthesis, and properties of highly efficient side-chain

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

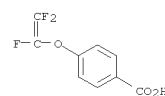
PAGE 2-A



CM 2

CRN 134151-66-9

CMF C9 H5 F3 O3



CM 3

CRN 24979-70-2

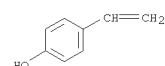
CMF (C8 H8 O)x

CCI FMS

CM 4

CRN 2628-17-3

CMF C8 H8 O



RN 502558-70-5 CAPLUS

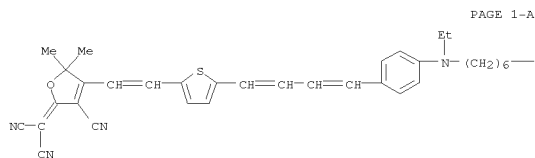
CN Phenol, 4-ethenyl-, homopolymer, benzoate

10560670.trn

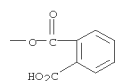
L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
6-[[[4-[5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl
1,2-benzenedicarboxylate (CA INDEX NAME)

CM 1

CRN 502449-25-4
CMF C42 H40 N4 O5 S

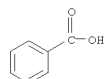


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CM 2

CRN 65-85-0
CMF C7 H6 O2

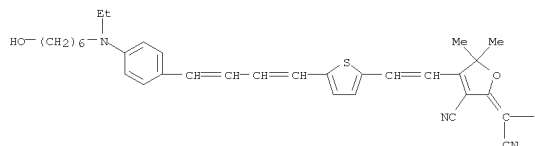


CM 3

CRN 24979-70-2
CMF (C8 H8 O)x
CCI FMS

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
highly efficient side-chain dendronized nonlinear optical polymers for
electro-optics)
RN 502449-21-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl[6-hydroxyhexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

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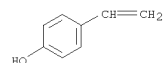
PAGE 1-B

—CN

IT 502449-25-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(pendent chromophore; design, synthesis, and properties of highly
efficient side-chain dendronized nonlinear optical polymers for
electro-optics)
RN 502449-25-4 CAPLUS
CN 1,2-Benzenedicarboxylic acid, 1-[6-[[[4-[5-[2-[4-cyano-5-(
(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-
1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester (CA INDEX NAME)

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
CM 4

CRN 2628-17-3
CMF C8 H8 O



IT 502449-23-2

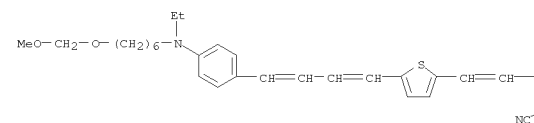
RL: RCT (Reactant); RACT (Reactant or reagent)
(pendent chromophore synthesis; design, synthesis, and properties of
highly efficient side-chain dendronized nonlinear optical polymers for
electro-optics)

RN 502449-23-2 CAPLUS

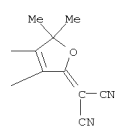
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl[6-

(methoxymethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-
5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

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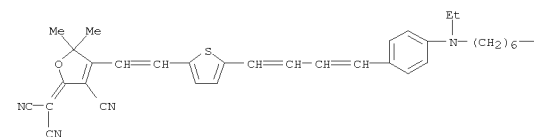


IT 502449-21-0P

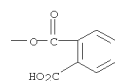
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(pendent chromophore synthesis; design, synthesis, and properties of

L65 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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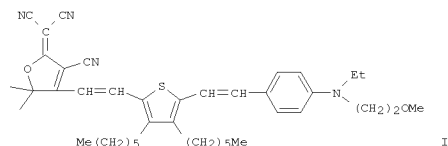


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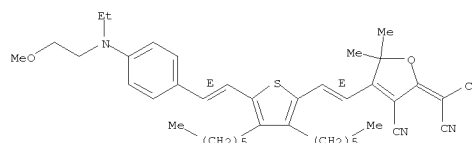
10560670.trn

L65 ANSWER 20 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2002:833542 Document No. 137:332023 Highly hyperpolarizable chromophore for
 core guest host systems useful for electro-optic devices. Taylor,
 Rebecca
 Ellen; Ermer, Susan Patricia; Bedworth, Peter V.; Lovejoy, Steven M.;
 Leung, Doris S.; Warren, Hope B. (USA). U.S. Pat. Appl. Publ. US
 20020161165 A1 20021031, 3 pp. (English). CODEN: USXXCO.
 APPLICATION: US 2002-119316 20020410. PRIORITY: US 2001-282478P
 20010410.
 GI

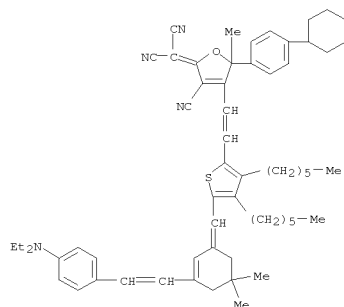


AB A chromophore in a polymer is given having the structure I in a
 polycarbonate matrix. The composition is useful for electro-optic
 material
 that does not suffer (by heat) from the limitations of prior materials
 used in the art. It is a further object to provide a new class of highly
 hyperpolarizability organic chromophores. It is yet a further object of
 this
 invention to show a process for synthesizing the novel highly
 hyperpolarizable organic chromophores. Another object is to provide
 devices
 such as electrooptical modulators employing the new class of novel highly
 hyperpolarizable organic chromophores.
 IT 473796-78-0P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (chromophore; highly hyperpolarizable chromophore for core guest host
 systems useful for electro-optic devices)
 RN 473796-78-0 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-
 methoxyethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]ethenyl]-5,5-
 dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)
 Double bond geometry as shown.

L65 ANSWER 20 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



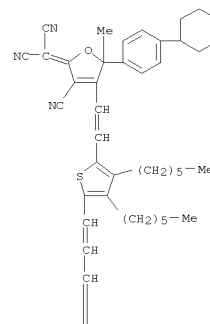
L65 ANSWER 21 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2002:787053 Document No. 138:14286 Synthesis of Chromophores with Extremely
 High Electro-optic Activities. 2. Isophorone- and Combined
 Isophorone-Thiophene-Based Chromophores. He, Mingqian; Leslie, Thomas
 M.;
 Sinicropi, John A.; Garner, Sean M.; Reed, Leon D. (Corning Incorporated,
 Corning, NY, 14831, USA). Chemistry of Materials, 14(11), 4669-4675
 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher:
 American Chemical Society.
 AB Four new isophorone and combined isophorone and thiophene bridged
 chromophores have been synthesized. All of these new high $\mu\beta$
 chromophores possess our newly synthesized tricyanovinylidihydrofuran
 acceptors. Because of our unique acceptor design, all of our
 chromophores
 show high solubility in all organic solvents due to minimized
 chromophore-chromophore electrostatic interactions. These chromophores
 have also been studied with respect to their solvatochromism and thermal
 behavior by TGA in air. Preliminary EO characterization of one of these
 chromophores in polycarbonate has demonstrated an extremely high r33 of
 70
 pm/V at 1550 nm. We believe that this is the largest r33 reported at
 this
 wavelength.
 IT 477741-16-5P 477741-17-6P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of isophorone- and combined isophorone-thiophene-based
 chromophores with extremely high electro-optic activities)
 RN 477741-16-5 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[(3-[2-[4-
 (diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene)methyl]-
 3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furan-2-ylidene]- (CA INDEX
 NAME)



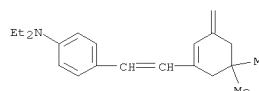
RN 477741-17-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[(3-[2-[4-

L65 ANSWER 21 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 (diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
 propen-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furan-2-ylidene]-
 (CA INDEX NAME)

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L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:787052 Document No. 138:246080 Synthesis of Chromophores with
Extremely

High Electro-optic Activity. 1. Thiophene-Bridge-Based Chromophores. He, Mingqian; Leslie, Thomas M.; Sinicropi, John A. (Corning Incorporated, Corning, NY, 14831, USA). Chemistry of Materials, 14(11), 4662-4668 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. OTHER SOURCES: CASREACT 138:24608. Publisher: American Chemical Society.

AB We have successfully synthesized several new substituted thiophene-based electro-optic chromophores. All of these chromophores have structures similar to FTC but they incorporated our newly designed tricyanovinylidihydrofuran acceptors. Since these acceptors possess an anisotropic structure, all of the chromophores are very soluble in a wide range of organic solvents. Thermal study of these chromophores by TGA

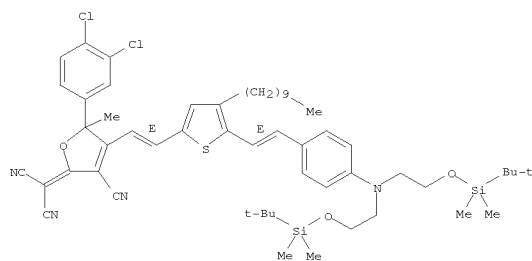
shows all of them are very stable in air. UV spectra indicate the chromophores have a large solvatochromic effect, implying very large mol. nonlinearities.

IT 477892-06-1P 477892-32-3P 477892-34-5P
477892-35-6P 477892-36-7P 477892-37-8P
477892-39-0P 477892-40-3P

RI: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (chromophore; synthesis of thiophene-bridge-based chromophores with extremely high electro-optic activity)

RN 477892-06-1 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

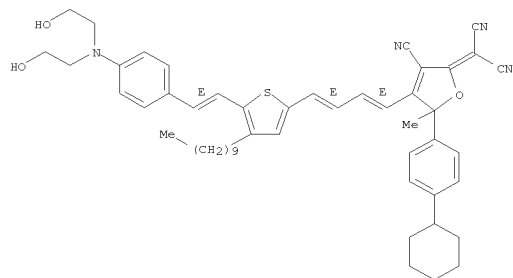


RN 477892-32-3 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(2,4-difluorophenyl)-5-methyl-2(5H)-

L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis(2-

hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

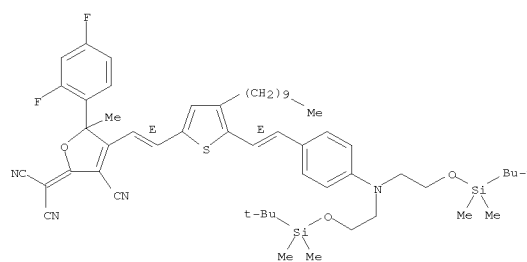


RN 477892-36-7 CAPLUS
CN Propanedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

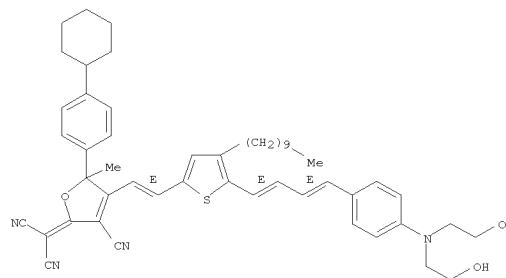
L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RN 477892-34-5 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E,3E)-4-[4-[bis(2-hydroxyethyl)amino]phenyl]-1,3-butadien-1-yl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

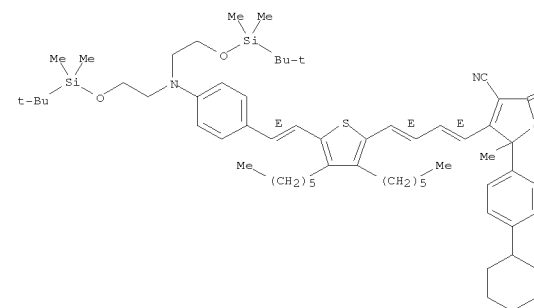
Double bond geometry as shown.



RN 477892-35-6 CAPLUS

L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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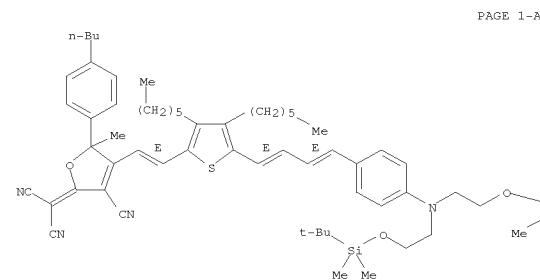


RN 477892-37-8 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E,3E)-4-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]-1,3-butadien-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-(4-butylphenyl)-3-cyano-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

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L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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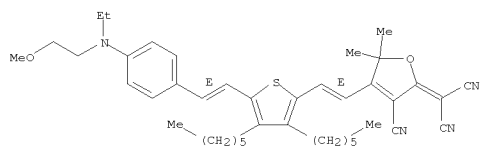


RN 477892-39-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E)-2-[3,4-dihexyl-5-[(1E,3E)-4-[4-[(2-hydroxyethyl)methylamino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-2(5H)-furanlylidene]- (CA INDEX NAME)

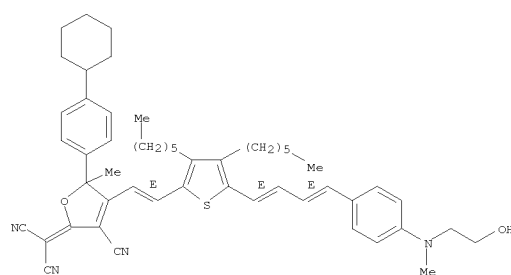
Double bond geometry as shown.

L65 ANSWER 23 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:770496 Document No. 138:97888 Low-voltage electro-optic modulation using amorphous polycarbonate host material. Ermer, Susan; Lovejoy, Steven M.; Bedworth, Peter V.; Leung, Doris S.; Warren, Hope B.; Epstein, Joseph A.; Girton, Dexter G.; Dries, Larry S.; Taylor, Rebecca E.; Barto, Richard R., Jr.; Eades, Wendell; Van Eck, Timothy E.; Moss, Angelina S.; Anderson, William W. (Lockheed Martin Advanced Technology Center, Palo Alto, CA, 94304-1191, USA). Advanced Functional Materials, 12(9), 605-610 (English) 2002. CODEN: AFMDC6. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.
AB The selection process leading to the development of a guest-host electro-optic material based on an amorphous polycarbonate (APC) is described. The optical loss at 1300 nm of this material system is under 2 dB/cm, which is the confidence limit of the slab measurement used. A Mach-Zehnder modulator fabricated using the push-pull poling technique has a low switching voltage (V_{π}) of 1.2 V.
IT 473796-78-0P, Chromophore 46M
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(chromophore 46M; low-voltage electro-optic modulation using amorphous polycarbonate host material doped with chromophore 46M)
RN 473796-78-0 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl (2-methoxyethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.

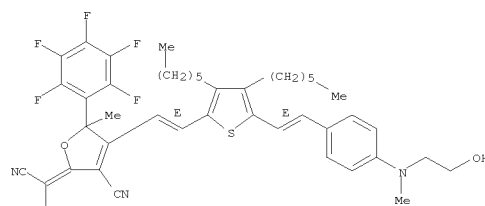


L65 ANSWER 22 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



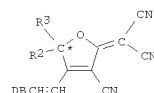
RN 477892-40-3 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dihexyl-5-[(1E)-2-[4-[(2-hydroxyethyl)methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(2,3,4,5,6-pentafluorophenyl)-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



L65 ANSWER 24 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:387664 Document No. 136:3874250 Chromophores for polymeric thin films and optical waveguides and devices comprising the same. He, Mingqian; Leslie, Thomas M. (Corning Incorporated, USA). U.S. US 6393190 B1 20020521, 16 pp., Cont.-in-part of U.S. Ser. No. 595,221. (English). CODEN: USXXAM. APPLICATION: US 2000-675966 20000929. PRIORITY: US 2000-595221 20000616.

GI

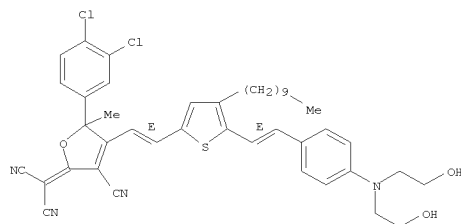


AB Comps. are claimed which are described by the general formula I (R2 and R3 = rings in which * denotes a spiro junction or a chiral center; D = electron donating group; B is or contains ≥ 1 bivalent aromatic ring; and R2 and R3 = independently selected (un)substituted C1-10 alkyl, (un)substituted C2-10 alkenyl, (un)substituted C2-10 alkynyl, (un)substituted aryl, (un)substituted alkylaryl, (un)substituted carbocyclic, (un)substituted heterocyclic, (un)substituted cyclohexyl, or (CH2)nO(CH2)n; and n = 1-10). Methods for preparing the electron-withdrawing groups are described. Optical waveguides comprising polymers incorporating the compds., and optical devices (e.g., laser frequency converters, optical interferometric waveguide gates, wideband electrooptical guided wave analog-to-digital converters, and optical parametric devices) incorporating the waveguides, are also described.
IT 383124-87-6P
RL: IMP (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(furan derivative chromophores for polymeric thin films and their production and optical waveguides and devices comprising them)
RN 383124-87-6 CAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2,3-dicarbonyl dichloride, 1,4,5,6,7,7-hexachloro-, polymer with
[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlylidene]propanedinitrile and 2,3,5,6-tetrachloro-1,4-benzenedimethanol (9CI) (CA INDEX NAME)
CM 1
CRN 383124-85-4
CMF C43 H46 Cl2 N4 O3 S

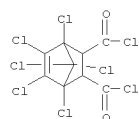
Double bond geometry as shown.

10560670.trn

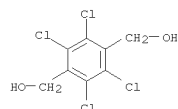
L65 ANSWER 24 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



CM 2
CRN 16673-09-9
CMP C9 H2 C18 O2

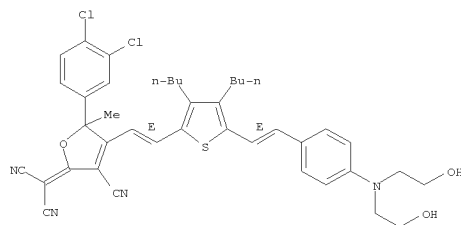


CM 3
CRN 7154-26-9
CMP C8 H6 C14 O2



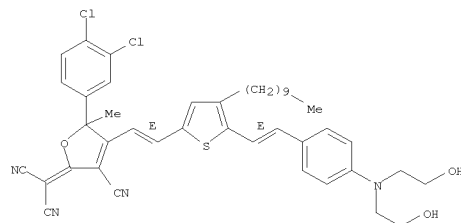
IT 383124-85-4P
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or

L65 ANSWER 24 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 24 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
engineered material use); PREP (Preparation); RACT (Reactant or reagent);
USES (Uses)
(monomer chromophore; prodn. of intermediates for electrooptical
chromophores)
RN 383124-85-4 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-
(3,4-dichlorophenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



IT 383124-86-5P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(monomeric chromophore; production of intermediates for electrooptical
chromophores)
RN 383124-86-5 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-
5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

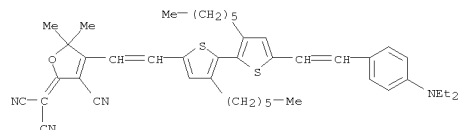
Double bond geometry as shown.

L65 ANSWER 25 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:233700 Document No. 136:2543330 Sterically stabilized second-order
nonlinear optical chromophores and devices incorporating the same.
Dalton, Larry R.; Zhang, Cheng; Wang, Chuanguang; Fetterman, Harold R.;
Wang, Fang; Steier, William; Harper, Aaron W.; Ren, Albert S.; Michael,
Joseph (Pacific Wave Industries, Inc., USA). U.S. US 6361717 B1
20020326, 30 pp., Cont.-in-part of U.S. 6,067,186. (English).
CODEN: USXXAM. APPLICATION: US 2000-488422 20000120. PRIORITY: US
1998-122806 19980727.

AB Nonlinear optical devices are described in which the active element
incorporates a chromophore which includes an electron donor group and an
electron acceptor group joined by a bridge structure, preferably a
ring-locked bridge structure. Preferably, at least the electron acceptor
group is bonded to the bridge structure via a conjugated diene. In a
preferred embodiment, the bridge structure also includes a bulky
side group. The bridge structure may comprise two protected alicyclic
rings or ring-locked trienone. Alternately, the chromophore may include
an electron donor group, a ring-locked tricyano electron acceptor group,
and a bridge structure between them. The electron acceptor group may
comprise an isophorone structure. The bridge structure may include a
bithiophene unit or a modified isophorone unit.

IT 351445-08-4 351445-10-8
RL: DEV (Device component use); USES (Uses)
(nonlinear optical devices employing sterically stabilized

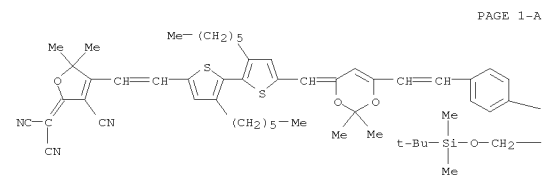
second-order
nonlinear optical chromophores)
RN 351445-08-4 CAPLUS
CN Propanedinitrile,
2-[3-cyano-4-[2-[5'-[2-[4-(diethylamino)phenyl]ethenyl]-
3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-
furanylidene]- (CA INDEX NAME)



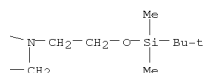
RN 351445-10-8 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5'-[[6-[2-[4-[bis[2-[[[1,1-
dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-1-
4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-
yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

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L65 ANSWER 25 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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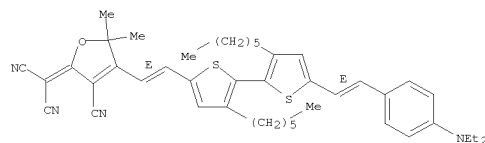


L65 ANSWER 26 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2002:172353 Document No. 136:2388020 Second-order nonlinear optical chromophores containing dioxin and/or bithiophene as conjugate bridge and devices incorporating the same. Wang, Chuanguang; Zhang, Cheng; Fetterman, Harold R.; Steier, William; Michael, Joseph (Pacific Wave Industries, Inc., USA). U.S. Pat. Appl. Publ. US 20020027220 A1 20020307, 16 pp., Cont.-in-part of U. S. Ser. No. 488,422. (English). CODEN: USXXCO. APPLICATION: US 2001-898625 20010703. PRIORITY: US 2000-488422 20000120; US 1998-122806 19980727; US 2000-546930 20000411; US 2000-551685 20000418.
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Nonlinear optical devices (e.g., electrooptical modulators, phase shifters) comprising an active element formed from a chromophore including an electron donor group, an electron acceptor group, and a bridge structure between the electron donor group and the electron acceptor group are described in which the chromophores are described by the general formula I, the bridge structure is described by the general formula II, or the electron donor group and the bridge structure are described by the general formula III (A = CH₂ or O; B = is an electron acceptor; and R = independently selected H, F, or a perhalogenated, halogenated, or nonhalogenated C1-30 aliphatic or aromatic group functionalized with ≥0 hydroxy, ether, ester, amino, silyl, and siloxy groups).
 IT 402857-27-6 402857-28-7
 RI: DEV (Device component use); USES (Uses)
 (nonlinear optical devices employing second-order nonlinear optical chromophores containing dioxin and/or bithiophene as conjugate bridge)
 RN 402857-27-6 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

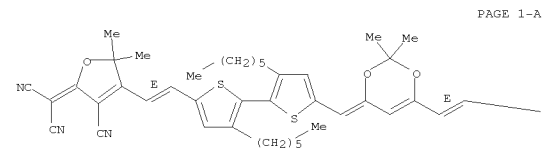
Double bond geometry as shown.



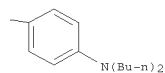
L65 ANSWER 26 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

RN 402857-28-7 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[[6-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2,2-dimethyl-4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as described by E or Z.



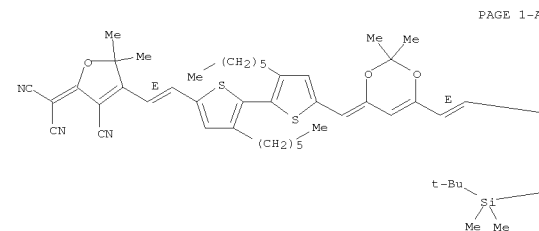
PAGE 1-B



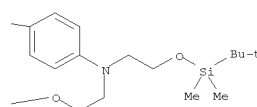
IT 402857-26-5P
 RI: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (nonlinear optical devices employing second-order nonlinear optical chromophores containing dioxin and/or bithiophene as conjugate bridge)
 RN 402857-26-5 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5'-[[6-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as described by E or Z.

L65 ANSWER 26 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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L65 ANSWER 27 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:142698 Document No. 136:2239410 Design and synthesis of advanced NLO materials for electro-optic applications. Londergan, Tim; Todorova, Galina K.; Zhu, Jingsong; Huang, Diyun (Lumera Corporation, USA). PCT Int. Appl. WO 2002014305 A2 20020221, 119 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US25779 20010817. PRIORITY: US 2000-226267P 20000817.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

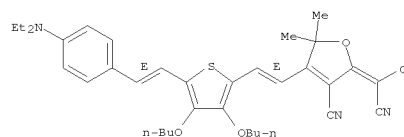
AB Thiophene-containing chromophores are described by the general formulas I, II and III (D = electron donating group with low electron affinity relative to the electron affinity of A; π 1,2 are absent or a bridge that provides electronic conjugation between the thiophene ring and D or A, resp.; A = electron accepting group with high electron affinity relative to the electron affinity of D; X = O or S; R = alkyl, aryl, heteroalkyl or heteroaryl; n = 1-4; R1,2 = alkyl, aryl or heteroalkyl; π is absent or a bridge that provides electronic conjugation between D1 and the double bond adjacent to π ; D1 = is an electron donating group with low electron affinity relative to the electron affinity of the fragment to which π is connected). Also described are processes for providing materials comprising the novel chromophores and polymer matrixes containing the novel chromophores. Electrooptical devices containing one or more of the described electron acceptors, electron donors, conjugated bridges, or chromophores are also discussed.

IT 400760-64-7P 400760-71-6P 400771-39-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(design and synthesis of advanced nonlinear optical materials for electrooptical applications)

RN 400760-64-7 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

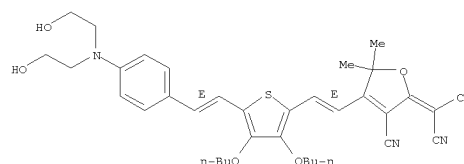
Double bond geometry as shown.

L65 ANSWER 27 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 400760-71-6 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

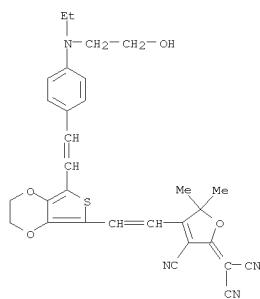
Double bond geometry as shown.



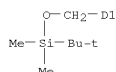
RN 400771-39-3 CAPLUS
CN Propanedinitrile, [3-cyano-4-[(1E)-2-[[[(1,1-dimethyl-2-ethyl-2-hydroxyethyl)dimethylsilyl]oxy]methyl]-7-[(1E)-2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (9CI) (CA INDEX NAME)

L65 ANSWER 27 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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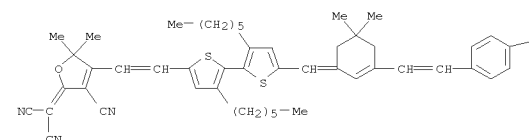
L65 ANSWER 28 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:136097 Document No. 136:1914420 Sterically stabilized polyene-bridged second-order nonlinear optical chromophores and devices incorporating the same. Zhang, Cheng; Fetterman, Harold R.; Steier, William; Michael, Joseph (Pacific Wave Industries, Inc., USA). U.S. US 6348992 B1 20020219, 33 pp., Cont.-in-part of U.S. Ser. No. 546,930. (English). CODEN: USXXAM. APPLICATION: US 2000-551685 20000418. PRIORITY: US 1998-122806 19980727; US 2000-488422 20000120; US 2000-546930 20000411.

AB Nonlinear optical devices (e.g., electrooptical modulators, phase shifters) are described which employ an active element formed from a chromophore including an electron donor group, an electron acceptor group, and a π -conjugate bridge structure between the electron donor group and the electron acceptor group which includes at least one non-aromatic 5-, 6-, or 7-membered ring which lock(s) one or two carbon-carbon double bond(s) of the conjugate bridge structure and in which the electron acceptor group is connected to the bridge ring structure with a conjugated diene or triene. The bridge may contain a bithiophene unit. The chromophores may be doped into a polymer, preferably a bisphenol A carbonate-4,4'-(3,3,5-trimethylcyclohexylidene)diphenol carbonate copolymer. The devices may be packaged in inert gas filled packages.

IT 369397-36-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nonlinear optical devices employing sterically stabilized polyene-bridged second-order nonlinear optical chromophores)

RN 369397-36-4 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[[3-[2-[4-(dimethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

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—NMe2

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L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2002:90034 Document No. 136:1362450 Hyperpolarizable organic chromophores.
 Dalton, Larry R.; Jen, Alex Kwan-Yue; Londergan, Timothy; Carlson,
 William
 Brenden; Phelan, Gregory; Huang, Diyun; Casmier, Daniel; Ewy, Todd;
 Buker,
 Nicholas (University of Washington, USA). PCT Int. Appl. WO 2002008215

A1 20020131, 104 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US23339 20010724. PRIORITY: US 2000-PV220321 20000724.

AB The present invention provides hyperpolarizable organic chromophores based on heterocyclic compds. The chromophores are nonlinear optically active compds. that include a π -donor conjugated to a π -acceptor through a π -electron conjugated bridge. Macromol. structures including the hyperpolarizable organic chromophores are also provided.

IT 392662-44-1P 392662-45-2P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (chromophore; production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores)

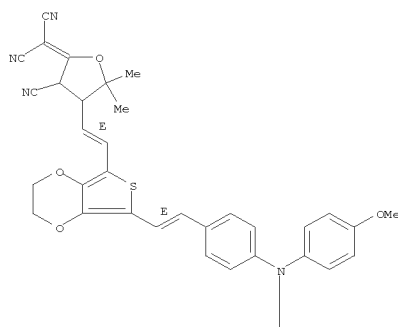
RN 392662-44-1 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[7-[(1E)-2-[4-[bis(4-

methoxyphenyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(3H)-furanlylidene]- (CA INDEX NAME)

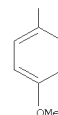
Double bond geometry as shown.

L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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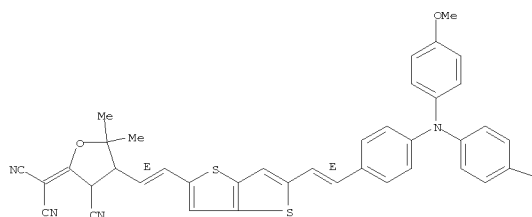


RN 392662-45-2 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(3H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.

L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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IT 392662-55-4P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (dendrimer chromophore; production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores)

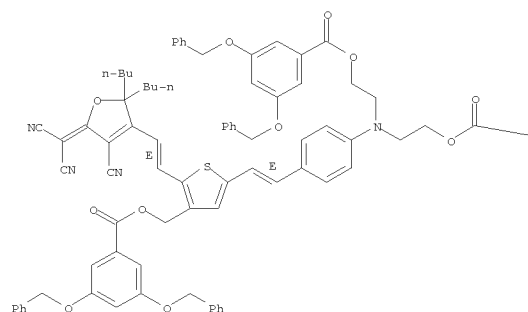
RN 392662-55-4 CAPLUS
 CN Benzoic acid, 3,5-bis(phenylmethoxy)-,

[[4-[(1E)-2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy]methyl]-5-[(1E)-2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI) (CA INDEX NAME)

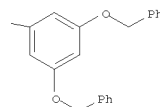
Double bond geometry as shown.

L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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PAGE 1-B

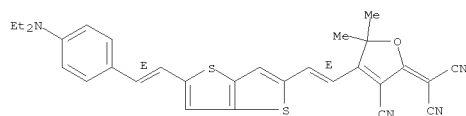


IT 392662-59-8P 392662-63-4P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (green chromophore; production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores)

RN 392662-59-8 CAPLUS
 CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

10560670.trn

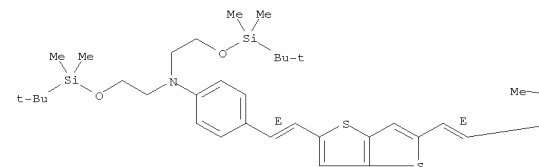
L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
Double bond geometry as shown.



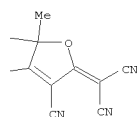
RN 392662-63-4 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A

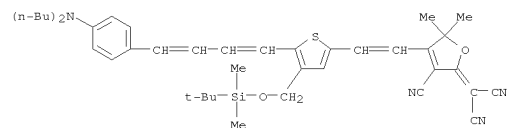


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IT 392662-54-3

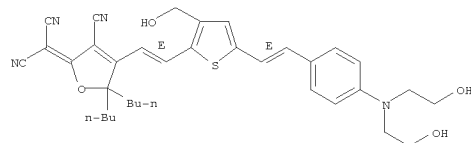
L65 ANSWER 30 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:49603 Document No. 136:332344 Highly efficient and thermally stable organic/polymeric electro-optic materials by dendritic approach. Jen, Alex K.-Y.; Ma, Hong; Sassa, Takafumi; Liu, Sen; Suresh, S.; Dalton, Larry
Raymond; Haller, Marnie (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Proceedings of SPIE-The International Society for Optical Engineering, 4461(Linear and Nonlinear Optics of Organic Materials), 172-179 (English) 2001. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.
AB Dendron-modified nonlinear optical (NLO) chromophores and multiple chromophore-containing crosslinkable NLO dendrimers were developed. The enhancement of poling efficiency (40%) in the dendritic NLO chromophore/polymer guest/host system was obtained due to the significant minimization of intermol. electrostatic interactions among chromophores by the dendritic effect. Multiple NLO chromophore building blocks can be further placed into a dendrimer to construct precise mol. architecture with predetd. chemical composition The site-isolation effect, through the encapsulation of NLO moieties by dendrons, can greatly enhance the performance of electrooptic (E-O) materials. A very large E-O coefficient (r_{33} = 60 pm/V at 1.55 μ m) and high temporal stability (85° C for >1000 h) were achieved in a NLO dendrimer developed through the double-end functionalization of a 3-dimensional shape phenyl-tetracyanobutadienyl (Ph-TCBD)- containing NLO chromophore with thermally crosslinkable trifluorovinylether-containing dendrons.
IT 413627-45-9 413627-50-6 413627-55-1
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(highly efficient and thermally stable organic/polymeric electro-optic materials by dendritic approach)
RN 413627-45-9 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)



RN 413627-50-6 CAPLUS
CN Tricyclo[3.3.1.1.3,7]decane-1-carboxylic acid, [5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furan]ethenyl]-2-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-3-thienyl]methyl ester (CA INDEX NAME)

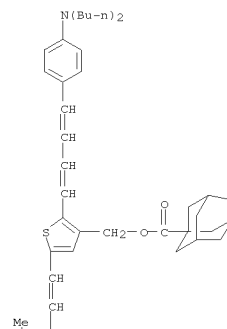
L65 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; prodn. of donor-acceptor conjugated hyperpolarizable heterocyclic org. chromophores)
RN 392662-54-3 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]-5,5-dibutyl-3-cyano-2(5H)-furan-2-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.

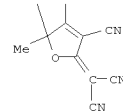


L65 ANSWER 30 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

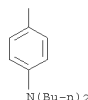
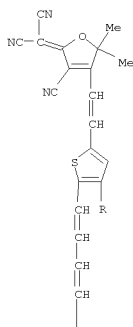
PAGE 1-A



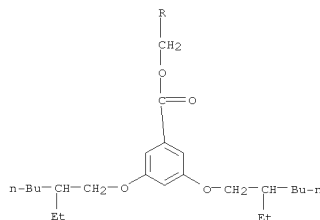
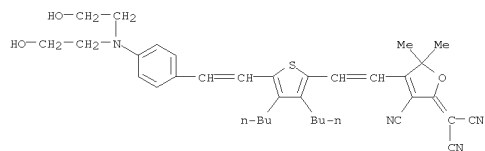
PAGE 2-A



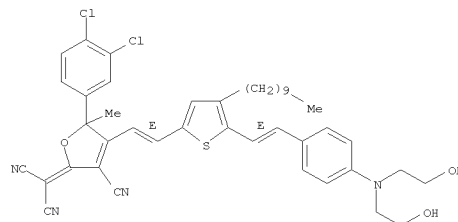
RN 413627-55-1 CAPLUS
CN Benzoic acid, 3,5-bis[(2-ethylhexyl)oxy]-, [5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furan]ethenyl]-2-[4-[4-(dibutylamino)phenyl]-1,3-butadien-1-yl]-3-thienyl]methyl ester (CA INDEX NAME)



L65 ANSWER 31 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2002:17434 Document No. 137:7001 Compact EO polymer vibration sensors
utilizing various planar and hybrid fiber/waveguide architectures.
Yacoubian, Araz (IPITEK, Carlsbad, CA, 92008, USA). Polymer News,
26(12),
408-415 (English) 2001. CODEN: PLYNBU. ISSN: 0032-3918.
Publisher: Gordon & Breach Science Publishers.
AB The use of electro-optic (EO) polymers for high frequency vibration
sensing applications is explored. This paper presents four integrated
optics-based sensor architectures designed to perform acoustic spectrum
anal. These devices utilize EO polymer materials traditionally used for
communication applications, whereas here they are used to perform
heterodyning to down-convert high frequency (GHz) vibrations to lower
frequencies and utilize low-frequency photo detectors. In conjunction
with a pulsed laser, the sensors are capable of interrogating sub-surface
structures of thin films and opaque materials at micron and sub-micron
depth resolution To make a practical device requires addressing loss,
size, mech. and thermal fluctuation tolerance, and ease of fabrication issues.
Therefore, four different architectures are implemented and compared.
The implemented devices consist of planar waveguide and fiber structures
utilizing ridge, slab mode, hybrid ridge/slab mode, and hybrid
fiber/waveguide architectures. Performances of all four devices are
compared, and the best architecture is chosen. Low-frequency expts.
illustrate the proof of concept, while high frequency expts. (measured up
to 200 MHz) illustrate the sensing of vibration excited by a pulsed
Nd-YAG laser. Application of the technol. for different industries is
discussed.
IT 432555-91-4
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(compact electro optic polymer vibration sensors utilizing various
planar and hybrid fiber/waveguide architectures)
RN 432555-91-4 CAPLUS
CN Propanedinitrile,
[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-
3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilydene]-,
homopolymer (9CI) (CA INDEX NAME)
CM 1
CRN 224746-62-7
CMF C36 H42 N4 O3 S



L65 ANSWER 32 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2001:935613 Document No. 136:552260 Chromophores, their production and
their
use for polymeric thin films and optical waveguides. He, Mingqian;
Leslie, Thomas M. (Corning Incorporated, USA). PCT Int. Appl. WO
2001098310 A1 20011227, 48 pp. DESIGNATED STATES: W: AE, AG,
AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE,
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
TZ, UA, UG, UZ, VN, YU, ZA, ZW; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2.
APPLICATION: WO 2001-US15827 20010516. PRIORITY: US 2000-595221
20000616;
US 2000-675966 20000929.
AB The present invention is directed to chromophores having novel
electron-withdrawing groups and novel bivalent cyclic bridges and to
optical waveguides and optical devices having polymeric thin films which
contain the novel chromophores. An example was given for the production
of the bis(hydroxyethyl)amino derivative of a conjugated chromophore
containing
thiophene and dihydrofuran rings; this compound was copolymd. with a
chlorinated norbornenedicarboxylic acid derivative and a chlorinated
xylylenediol to provide an electrooptical polyester.
IT 383124-85-4P
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or
engineered material use); PREP (Preparation); RACT (Reactant or reagent);
USES (Uses)
(monomer chromophore; production of intermediates for electrooptical
chromophores)
RN 383124-85-4 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-
(3,4-dichlorophenyl)-5-methyl-2(5H)-furanilydene]- (CA INDEX NAME)
Double bond geometry as shown.

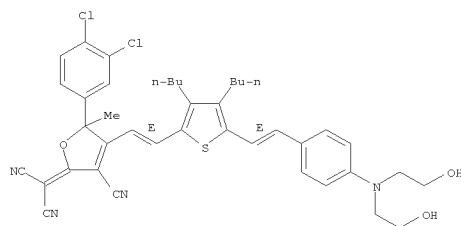


IT 383124-86-5P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(monomeric chromophore; production of intermediates for electrooptical

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L65 ANSWER 32 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
chromophores)
RN 383124-86-5 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlylidene]- (CA INDEX NAME)

Double bond geometry as shown.



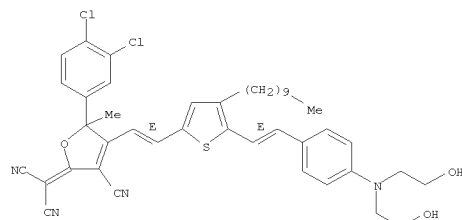
IT 383124-87-6P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(production of polyesters containing electrooptical chromophores)
RN 383124-87-6 CAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2,3-dicarbonyl dichloride, 1,4,5,6,7,7-hexachloro-, polymer with
[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlylidene]propanedinitrile and 2,3,5,6-tetrachloro-1,4-benzenedimethanol (9CI) (CA INDEX NAME)

CM 1

CRN 383124-85-4
CMF C43 H46 Cl2 N4 O3 S

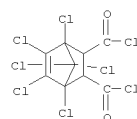
Double bond geometry as shown.

L65 ANSWER 32 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



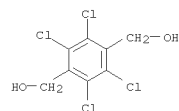
CM 2

CRN 16673-09-9
CMF C9 H2 Cl8 O2



CM 3

CRN 7154-26-9
CMF C8 H6 Cl4 O2



L65 ANSWER 33 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2001:781221 Document No. 135:3367150 Sterically stabilized polyene-bridged second-order nonlinear optical chromophores and devices incorporating the same. Zhang, Cheng; Fetterman, Harold R.; Steier, William; Michael, Joseph (Pacific Wave Industries, Inc., USA). PCT Int. Appl. WO 2001079750

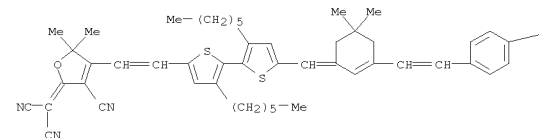
A1 20011025, 64 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US12354 20010416. PRIORITY: US 2000-551685 20000418.

AB Nonlinear optical devices (e.g., electrooptical modulators, phase shifters) are described which employ an active element formed from a chromophore including an electron donor group, an electron acceptor group, and a π -conjugate bridge structure between the electron donor group and the electron acceptor group which includes ≥ 1 non-aromatic 5-, 6-, or 7-membered ring which lock(s) one or two carbon-carbon double bond(s) of the conjugate bridge structure and in which the electron acceptor group

is connected to the bridge ring structure with a conjugated diene or triene. The bridge may contain a bithiophene unit. The chromophores may be doped into a polymer, preferably a bisphenol A carbonate-4,4'-(3,3,5-trimethylcyclohexylidene)diphenol carbonate copolymer. The devices may be packaged in inert gas filled packages.

IT 369397-36-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(nonlinear optical devices employing sterically stabilized polyene-bridged second-order nonlinear optical chromophores)
RN 369397-36-4 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[2-[5'-[3-[2-[4-(dimethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

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L65 ANSWER 33 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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L65 ANSWER 34 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2001:545954 Document No. 135:1444920 Sterically stabilized second-order
 nonlinear optical chromophores and devices incorporating the same.
 Dalton, Larry R.; Zhang, Cheng; Wang, Chuanguang; Fetterman, Harold R.;
 Wang, Fang; Steier, William; Harper, Aaron W.; Ren, Albert S.; Michael,
 Joseph (Pacific Wave Industries, Inc., USA). PCT Int. Appl. WO

2001053746
 A1 20010726, 52 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT,
 AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ,
 EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NO,
 NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
 US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE,
 BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT,
 LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN:
 PIXXD2. APPLICATION: WO 2001-US1655 20010117. PRIORITY: US 2000-488422
 20000120.

AB Nonlinear optical devices are described in which the active element
 incorporates a chromophore which includes an electron donor group and an
 electron acceptor group joined by a bridge structure, preferably a
 ring-locked bridge structure. Preferably, at least the electron acceptor
 group is bonded to the bridge structure via a conjugated diene. In a
 preferred embodiment, the bridge structure also includes at least one
 bulky side group. The bridge structure may comprise two protected
 alicyclic rings or ring-locked trienone. Alternately, the chromophore

may include an electron donor group, a ring-locked tricyano electron acceptor
 group, and a bridge structure between them. The electron acceptor group
 may comprises an isophorone structure. The bridge structure may include

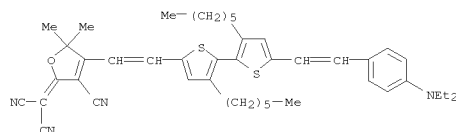
a bithiophene unit or a modified isophorone unit.

IT 351445-08-4 351445-10-8
 RL: DEV (Device component use); USES (Uses)
 (nonlinear optical devices employing sterically stabilized
 second-order

nonlinear optical chromophores)

RN 351445-08-4 CAPLUS

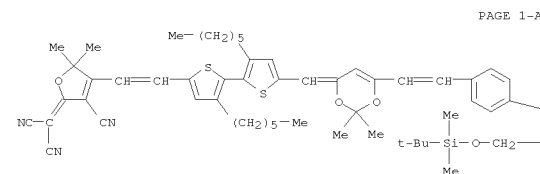
CN Propanedinitrile, 2-[4-[2-[5'-[2-[4-(diethylamino)phenyl]ethenyl]-
 2-[3-cyano-4-[2-[5'-[2-[4-(diethylamino)phenyl]ethenyl]-
 3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]- (CA INDEX NAME)



RN 351445-10-8 CAPLUS

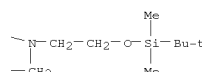
CN Propanedinitrile, 2-[4-[2-[5'-[6-[2-[4-[bis[2-[(1,1-

L65 ANSWER 34 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-
 4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dihexyl[2,2'-bithiophen]-5-
 yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



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L65 ANSWER 35 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2001:544550 Document No. 135:2886460 Rapid and efficient synthesis of
 2-[3-cyano-4-(2-arylidene)-5,5-dimethyl-5H-furan-2-ylidene]malononitrile
 under focused microwave irradiation. Villemain, Didier; Liao, Liang
 (Ecole

Nationale Supérieure d'Ingenieurs de Caen, ISMRA, UMR CNRS 6507, Caen,
 F-14050, Fr.). Synthetic Communications, 31(11), 1771-1780 (English)
 2001. CODEN: SYNGAV. ISSN: 0039-7911. OTHER SOURCES: CASREACT
 135:288646. Publisher: Marcel Dekker, Inc..

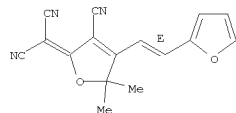
AB New biol. potential (2-furanylidene)malonitriles were synthesized
 efficiently by one-pot condensation under focused microwave from starting
 and easy available compds. An example compound thus prepared was
 [3-cyano-4-(E)-2-(2-furanyl)ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]propanedinitrile.

IT 364599-36-0P 364599-37-1P 364599-38-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of [3-cyano-4-(E)-2-(aryl)ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]propanedinitriles)

RN 364599-36-0 CAPLUS

CN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-(2-furanyl)ethenyl]-5,5-dimethyl-
 2(5H)-furanylidene]- (CA INDEX NAME)

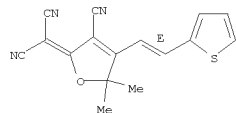
Double bond geometry as shown.



RN 364599-37-1 CAPLUS

CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(2-thienyl)ethenyl]-
 2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.

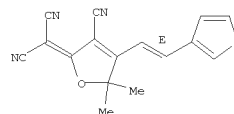


RN 364599-38-2 CAPLUS

CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(3-thienyl)ethenyl]-
 2(5H)-furanylidene]- (CA INDEX NAME)

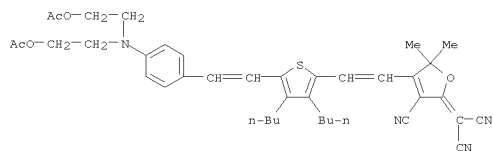
Double bond geometry as shown.

L65 ANSWER 35 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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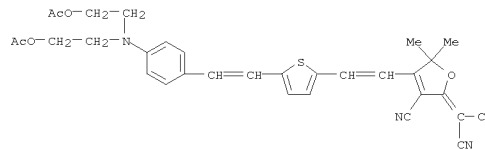
L65 ANSWER 36 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2001:425192 Document No. 135:218335 Production of high bandwidth polymeric electro-optic modulators with V_m voltages of less than 1 volt. Dalton, Larry; Robinson, Bruce; Steier, William (Department of Chemistry, University of Washington, Seattle, WA, 98195-1700, USA). MCLC S&T, Section B: Nonlinear Optics, 25 (1-4), 23-34 (English) 2000. CODEN: MCLOEB. ISSN: 1058-7268. Publisher: Gordon & Breach Science Publishers.
 AB Structure/function relations crucial to realization of broad bandwidth, low halfwave voltage, high stability polymeric electrooptic modulators are discussed. Particular attention is given a family of chromophores containing cyanofuran acceptors. Such chromophores permit the simultaneous realization of large mol. hyperpolarizability and thermal stability. The role of intermol. electrostatic interactions in limiting maximum achievable macroscopic electrooptic activity is discussed within the frameworks of both equilibrium and Monte Carlo statistical mech. calcs. The processing of polymeric electrooptic materials into low optical loss, 3-dimensional optical circuits is discussed. Finally, the use of polymeric electrooptic circuits for realization of phased array radar, time stretching, and other device applications is reviewed.
 IT 213131-98-7 265992-54-9
 RL: DBV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (production of high bandwidth polymeric electro-optic modulators with voltages of less than 1 V)
 RN 213131-98-7 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



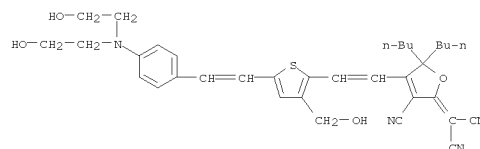
RN 265992-54-9 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:876115 Document No. 134:179119 Progress toward Device-Quality Second-Order Nonlinear Optical Materials. 4. A Trilink High $\mu\beta$ NLO Chromophore in Thermoset Polyurethane: A "Guest-Host" Approach to Larger Electrooptic Coefficients. Zhang, Cheng; Wang, Chuanguang; Dalton, Larry R.; Zhang, Hua; Steier, William H. (Loker Hydrocarbon Institute and Department of Chemistry, University of Southern California, Los Angeles, CA, 90089-1661, USA). Macromolecules, 34(2), 253-261 (English) 2001. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.
 AB A tri-linkable thiophene-containing second-order nonlinear optical (NLO) chromophore [(HO)3FTC] was synthesized from a tri-linkable donor bridge and a tri-cyanofuran electron acceptor (TCF). The TCF acceptor was modified with two Bu groups which greatly increased solubility and processability of the trihydroxy-functionalized chromophore and inhibited strong chromophore-chromophore interaction. A thermal stability study of (HO)3FTC indicates that the free hydroxyl group located close to the cyano acceptor causes the chromophore to decompose at a much lower temperature than FTC chromophores with no free hydroxyl groups. Significantly improved thermal stability of the chromophore in a polyurethane film was obtained by masking the free hydroxyl groups with toluene diisocyanate (TDI). Polyurethane prepolymer synthetic schemes were designed and studied in detail to improve elec. field induced dipole alignment. Enhancement of over 150% in poling efficiency was achieved by reducing the degree of chromophore attachment to the polymer backbone before applying an elec. poling field through a guest-host approach. It was critical to allow TDI and triethanolamine hydroxyl cross-linkers to react at higher temperature for a longer time to form a partially cross-linked prepolymer before the -NCO masked trilink chromophore was added. By anchoring chromophores to a three-dimensional cross-linked polyurethane network at three points, the thermal stability of poling-induced electrooptic activity was enhanced by 33%.
 IT 268548-55-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 ((HO)3FTC chromophore, intermediate; preparation of triisocyanate-thiophene chromophore and incorporation to TDI-TEA prepolymer to obtain polyurethane second-order NLO with high poling efficiency)
 RN 268548-55-6 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(hydroxyethyl)amino]phenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]-5,5-dibutyl-3-cyano-2(5H)-furanylidene]- (CA INDEX NAME)

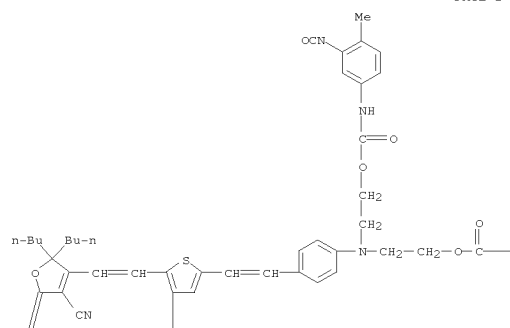
L65 ANSWER 36 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



IT 326597-51-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (monomer, trifunctionalized chromophore; preparation of triisocyanate-thiophene chromophore and incorporation to TDI-TEA prepolymer to obtain polyurethane second-order NLO with high poling efficiency)
 RN 326597-51-7 CAPLUS
 CN Carbamic acid, (3-isocyanato-4-methylphenyl)-, [[4-[2-[5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-4-[[[(3-isocyanato-4-methylphenyl)amino]carbonyl]oxy]methyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediy ester (9CI) (CA INDEX NAME)

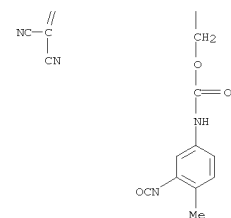
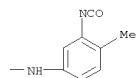


PAGE 1-A

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L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B



PAGE 2-A

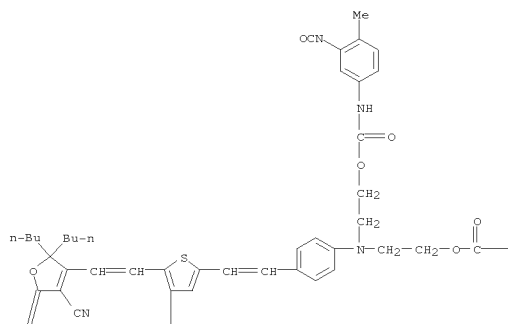
IT 326597-52-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (polyurethane; preparation of triisocyanate-thiophene chromophore and
 incorporation to TDI-TEA prepolymer to obtain polyurethane
 second-order
 NLO with high poling efficiency)
 RN 326597-52-8 CAPLUS
 CN Carbamic acid, (3-isocyanato-4-methylphenyl)-,
 [[4-[2-[5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-
 furanyl]ethenyl]-4-[[[(3-isocyanato-4-
 methylphenyl)amino]carbonyloxy]methyl]-2-thienyl]ethenyl]phenyl]imino]di-
 2,1-ethanediyl ester, polymer with 2,4-diisocyanato-1-methylbenzene and

L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 2,2',2''-nitrilotris[ethanol] (9CI) (CA INDEX NAME)

CM 1

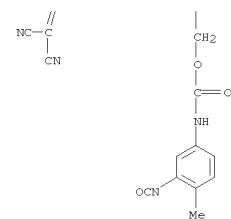
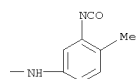
CRN 326597-51-7
 CMF C62 H58 N10 O10 S

PAGE 1-A



L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

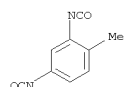
PAGE 1-B



PAGE 2-A

CM 2

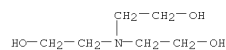
CRN 584-84-9
 CMF C9 H6 N2 O2



CM 3

L65 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

CRN 102-71-6
 CMF C6 H15 N O3



L65 ANSWER 38 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:819787 Document No. 134:123327 Realization of polymeric electro-optic modulators with less than one volt drive voltage requirement. Zhang, Cheng; Lee, Michael; Winklemann, Adam; Northcroft, Heidi; Lindsey, Christopher; Jen, Alex K. Y.; Londergan, Timothy; Steier, William H.; Dalton, Larry R. (Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, CA, 90089-1661, USA). Materials Research Society Symposium Proceedings, 598 (Electrical, Optical, and Magnetic Properties of Organic Solid-State Materials V), BB4.2/1-BB4.2/12 (English) 2000. CODEN: MRSPPH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB The roles played by spatially anisotropic intermol. electrostatic interactions, chromophore shape, host dielec. constant, and poling field strength in defining maximum achievable electrooptic activity for elec. poled chromophore/polymer materials were studied by equilibrium and Monte-Carlo quantum statistical mech. calcs. Even simple Hamiltonians reproduce critical qual. features such as the existence of a maximum in plots of electrooptic activity vs. chromophore number d. in a polymer matrix. Comparison of theor. results for various methods provides a useful check on the validity of approxns. employed with individual methods. The most significant conclusion to derive from a comparison of exptl. and theor. results is the dependence of maximum achievable electrooptic activity upon chromophore shape. Theor. calcs. suggest a new paradigm for the design of optimum electrooptic chromophores; realization of the desired shapes may be facilitated by dendritic synthetic approaches. In the presence of intermol. electrostatic interactions, the dependence of electrooptic activity upon material dielec. permittivity and elec. poling field strength is more complex than in the absence of such interactions. Of particularly, interest are conditions that lead to 2nd order phase transitions to lattices containing centrically (antiferroelectrically) ordered chromophore domains. Such phase transitions can lead to further complications in the attempted preparation of device quality materials but can be effectively avoided using theor. derived phase diagrams.

IT 321164-47-0
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (realization of polymeric electro-optic modulators with less than one volt drive voltage requirement)
 RN 321164-47-0 CAPLUS
 CN Benzoic acid, 3,5-bis(phenylmethoxy)-, [[4-[2-[5-[2-[2-[4-[[3,5-bis(phenylmethoxy)benzoyl]oxy]butyl]-4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediy] ester (9CI) (CA INDEX NAME)

L65 ANSWER 39 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:336442 Document No. 133:24424 Optical intensity modulator based on a novel electrooptic polymer incorporating a high $\mu\beta$ chromophore. Lee, Sang-Shim; Garner, Sean M.; Chuyanov, Vadim; Zhang, Hua; Steier, William H.; Wang, Fang; Dalton, Larry R.; Udupa, Anand H.; Fetterman, Harold R. (Department of Electrical Engineering-Electrophysics, University of Southern California, Los Angeles, CA, 90089-0483, USA). IEEE Journal of Quantum Electronics, 36(5), 527-532 (English) 2000. CODEN: IEJQA7. ISSN: 0018-9197. Publisher: Institute of Electrical and Electronics Engineers.

AB The authors synthesized a novel electrooptic (EO) polymer based on a high $\mu\beta$ chromophore incorporating tricyanobutadiene acceptors. A crosslinked polyurethane network was also adopted to enhance its thermal stability. To find the optimum poling condition for the polymer, the influence of the elec. poling profile on optical characteristics such as EO effect, thermal stability, and damage was studied. Then a high-speed intensity modulator using the EO polymer was designed and fabricated.

The measured half-wave voltage V_{π} was 4.5 V at the wavelength of 1.31 μm . Accordingly, the achieved EO coefficient r_{33} was ≤ 25 pm/V, and the thermal stability of the poled polymer was $\leq 95^\circ$. Finally, the modulator was successfully operated up to 40 GHz.

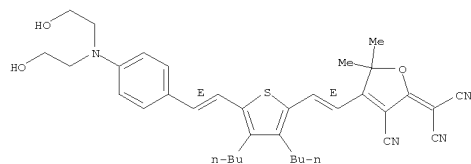
IT 247088-15-9P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (optical intensity modulator based on novel electrooptic polymer incorporating high $\mu\beta$ chromophore)

RN 247088-15-9 CAPLUS
 CN Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-, polymer with 1,3-diisocyanatomethylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 247088-12-6
 CMP C36 H42 N4 O3 S

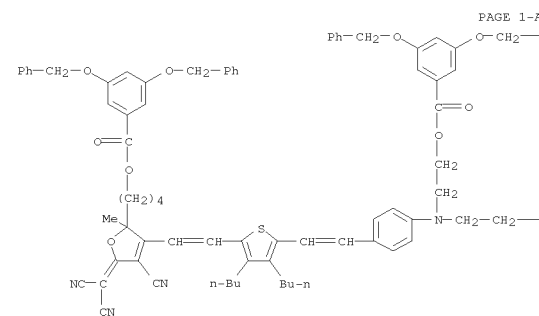
Double bond geometry as shown.



CM 2

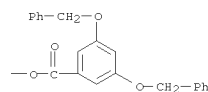
CRN 26471-62-5
 CMP C9 H6 N2 O2

L65 ANSWER 38 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

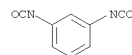


PAGE 1-B

Ph



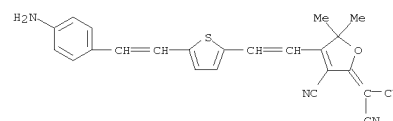
L65 ANSWER 39 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 CCI IDS



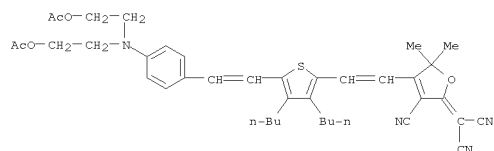
D1-Me

L65 ANSWER 40 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2000:248019 Document No. 132:340819 Monte Carlo statistical mechanical simulations of the competition of intermolecular electrostatic and poling-field interactions in defining macroscopic electro-optic activity for organic chromophore/polymer materials. Robinson, B. R.; Dalton, L. R.
(Department of Chemistry, University of Washington, Seattle, WA, 98195-1700, USA). Journal of Physical Chemistry A, 104(20), 4785-4795 (English) 2000. CODEN: JPCAPH. ISSN: 1089-5639. Publisher: American Chemical Society.
AB Monte Carlo statistical mech. computer simulations of the elec.-field poling of 2nd-order nonlinear optical chromophores, characterized by large dipole moments, polarizabilities, and hyperpolarizabilities, are presented. Such theor. anal. is critical to defining the structure/function relationships that permit maximization of electrooptical activity for π -electron chromophore-containing polymeric materials. Polymeric electrooptical materials may, in turn, be important for high-bandwidth telecommunications, new forms of radar, and high-speed data processing. The exptl. observed maxima in plots of electrooptical activity vs. chromophore number d. (loading) in polymer matrixes are theor. reproduced, as are the shifts of the maxima to lower loading with increasing chromophore dipole moment. Modification of the chromophore shape to realize the maximum achievable electrooptical activity for a given π -electron structure is discussed, as is the role of polymer elec. permittivity. Monte Carlo results are compared with the results of equilibrium statistical mech. calcons. based on the approximation of Piekara. The theor. results presented here have led to the production of polymeric electrooptical materials that permit devices with drive voltage requirements of <1 V to be fabricated. Polymeric modulators now significantly exceed the performance capabilities (in terms of bandwidth and drive voltage) of electrooptical modulators based on inorg. materials.
IT 267664-48-2D, amino and thienyl derivs.
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses) (dopant; Monte Carlo statistical mech. simulations of the competition of intermol. electrostatic and poling-field interactions in defining macroscopic electrooptical activity for organic chromophore/polymer materials)
RN 267664-48-2 CAPLUS
CN Propanedinitrile,
2-[4-[2-[5-[2-(4-aminophenyl)ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

L65 ANSWER 40 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

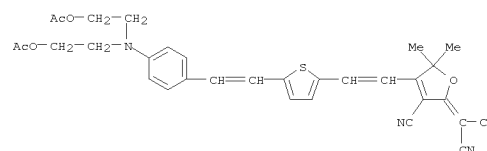


L65 ANSWER 41 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2000:245052 Document No. 132:315554 Low (sub-1-volt) halfwave voltage polymeric electro-optic modulators achieved by controlling chromophore shape. Shi, Yongqiang; Zhang, Cheng; Zhang, Hua; Bechtel, James R.; Dalton, Larry R.; Robinson, Bruce H.; Stetler, William H. (TACAN Corporation, Carlsbad, CA, 92008, USA). Science (Washington, D. C.), 288(5463), 119-122 (English) 2000. CODEN: SCIEAS. ISSN: 0036-8075. Publisher: American Association for the Advancement of Science.
AB Electrooptic (EO) modulators encode elec. signals onto fiber optic transmissions. High drive voltages limit gain and noise levels. Typical polymeric and Li niobate modulators operate with halfwave voltages of 5 V.
Sterically modified organic chromophores were used to reduce the attenuation of elec. field poling-induced electrooptic activity caused by strong intermol. electrostatic interactions. Such modified chromophores, incorporated into polymer hosts, were used to fabricate EO modulators with halfwave voltages of 0.8 V (at a telecommunications wavelength of 1318 nm) and to achieve a halfwave voltage-interaction length product of 2.2 V-centimeters. Optical push-pull poling and driving were also used to reduce halfwave voltage. This study, together with recent demonstrations of exceptional bandwidths (more than 110 GHz) and ease of integration (with very large scale integration semiconductor circuitry and ultra-low-loss passive optical circuitry) demonstrates the potential of polymeric materials for next generation telecommunications, information processing, and radio frequency distribution.
IT 213131-98-7 265992-54-9
RL: PRP (Properties) (low (sub-1-V) halfwave voltage polymeric electro-optic modulators achieved by controlling chromophore shape)
RN 213131-98-7 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)



RN 265992-54-9 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

L65 ANSWER 41 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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L65 ANSWER 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2000:208420 Document No. 132:335227 Dendrimer functionalized NLO chromophores. Londergan, Timothy M.; Zhang, Cheng; Ren, Albert; Dalton, Larry (Department of Chemistry, University of Washington, Seattle, WA, 98195, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 41(1), 783-784 (English) 2000. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

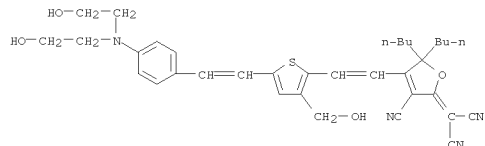
AB We have synthesized a Ph benzyl ether dendrimer containing an FTC chromophore in the core. This serves to isolate the nonlinear optical (NLO) active FTC mol. from neighboring chromophores, thereby decreasing the intermol. electrostatic interactions. The structure of the FTC-dendrimer was confirmed by ¹H NMR, ¹³C NMR, and MALDI-TOF mass spectrometry.

IT 268548-55-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of dendrimer-functionalized

furanyl-thienyl-cyano-containing
nonlinear optical chromophores)

RN 268548-55-6 CAPLUS

CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]-5,5-dibutyl-3-cyano-2(5H)-furanylidene]- (CA INDEX NAME)



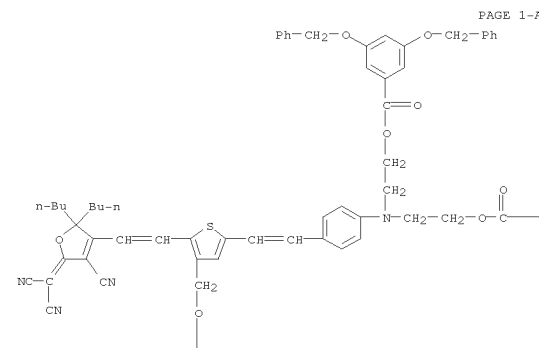
IT 268548-57-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and characterization of)

RN 268548-57-8 CAPLUS

CN Benzoic acid, 3,5-bis(phenylmethoxy)-,

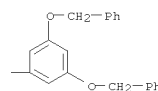
[[4-[2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy]methyl]-5-[2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI) (CA INDEX NAME)

L65 ANSWER 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



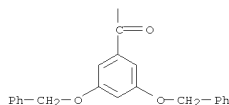
PAGE 1-A

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L65 ANSWER 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A



L65 ANSWER 43 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2000:133769 Document No. 132:1676750 New class of high hyperpolarizability organic chromophores and process for synthesizing the same. Dalton, Larry
R.; Fetterman, Harold R.; Wang, Fang; Steier, William; Harper, Aaron W.; Ren, Albert S.; Michael, Joseph (Pacific Wave Industries, Inc., USA).

PCT Int. Appl. WO 2000009613 A2 20000224, 45 pp. DESIGNATED STATES:
W: AU, JP; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US16274 19990726. PRIORITY: US 1998-122806 19980727.

AB The chromophores incorporate at least one organic substituent and are formed

in consideration of mol. shapes and a spatial anisotropy of intermol. interactions. The chromophores are processed into hardened material lattices to lock-in poling induced elec.-optic activity. Preferred organic

substituents are alkyl, aryl, and isophorone groups. A composite including the organic chromophore, in a preferred embodiment, includes a polymer such as a poly(Me methacrylate), polyimide, polyamic acid, polystyrene, polycarbonate or polyurethane. The optimized chromophores result in hardened electro-optic polymers suitable for electro-optic modulators and other devices such as optical switches. These modulators can be configured to work at high frequencies and in arrays for applications in communications and network connections. In addition,

they can be implemented in series and parallel combinations in phased array radar, signal processing and sensor technol. applications.

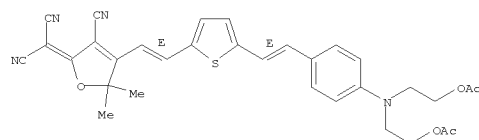
IT 247088-14-8
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(chromophores; new class of high hyperpolarizability organic chromophores and process for synthesizing same)

RN 247088-14-8 CAPLUS

CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

Double bond geometry as shown.



IT 247088-13-7
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

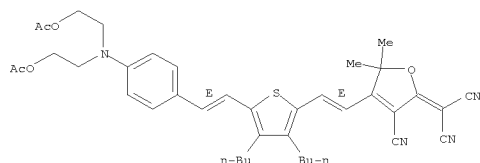
(chromophores; reaction in manufacture of new class of high hyperpolarizability organic chromophores for use in electrooptical devices)

RN 247088-13-7 CAPLUS

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L65 ANSWER 43 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-(acetyloxy)ethylamino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

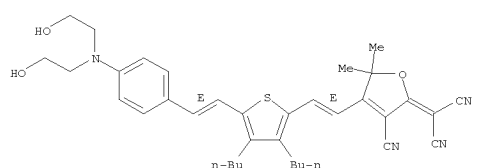
Double bond geometry as shown.



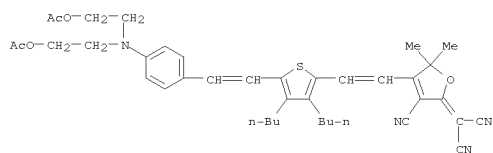
IT 247088-12-6P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);
 RACT (Reactant or reagent)
 (intermediate; reaction in manufacture of new class of high hyperpolarizability organic chromophores for use in electrooptical devices)

RN 247088-12-6 CAPLUS
 CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethylamino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)

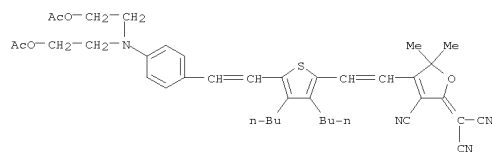
Double bond geometry as shown.



L65 ANSWER 45 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 1999:624487 Document No. 131:350892 Theoretical investigation on the first hyperpolarizability of push-pull polyenes containing non-aromatic cyclic olefins. Zhu, P.; Wang, P.; Ye, C. (Institute of Chemistry, Organic Solids Laboratory, Center for Molecular Science, Chinese Academy of Sciences, Beijing, Peop. Rep. China). Chemical Physics Letters, 311(3,4), 306-314 (English) 1999. CODEN: CHPLBC. ISSN: 0009-2614. Publisher: Elsevier Science B.V..
 AB Novel push-pull polyenes containing non-aromatic cyclic olefins, such as cyclopentadiene, cyclopropene and cycloheptatriene, have been investigated for application of nonlinear optical (NLO) materials. Their dot products $\mu\beta_0$ of first hyperpolarizability (β_0) and dipole moment (μ) are calculated by employing AML/Finite Field and ZINDO/S approaches. Among them, the largest value is as high as 4.1×10^{-45} esu. The origin of such high $\mu\beta_0$ was analyzed based on the two-level model. Non-aromatic groups can transform to a stable aromatic anion/cation through gaining/losing an electron in their charge transfer states.
 IT 213131-98-7
 RL: PRP (Properties)
 (theor. investigation on the first hyperpolarizability of push-pull polyenes containing non-aromatic cyclic olefins that become aromatic in the charge-transfer state)
 RN 213131-98-7 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-(acetyloxy)ethylamino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



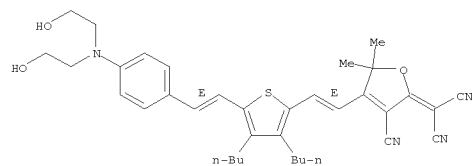
L65 ANSWER 44 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 2000:24450 Document No. 132:158653 DC biased electro-optic polymer waveguide modulators with low half-wave voltage and high thermal stability. Chen, Antao; Chuyunov, Vadim; Zhang, Hua; Garner, Sean; Lee, Sang-Shin; Steier, William H.; Chen, Jinghong; Wang, Fang; Zhu, Jingsong; He, Mingqian; Ra, Younsoo; Mao, Shane S. H.; Harper, Aaron W.; Dalton, Larry R.; Fetterman, Harold R. (Department of Electrical, University of Southern California, Los Angeles, CA, 90089-0483, USA). Optical Engineering (Bellingham, Washington), 38(12), 2000-2008 (English) 1999. CODEN: OPEGAR. ISSN: 0091-3286. Publisher: SPIE-The International Society for Optical Engineering.
 AB The full potential of 2nd-order nonlinear polymers can be used in electrooptic polymer modulators with a d.c. biased operation scheme to greatly reduce the half-wave voltage. This technique makes use of the total achievable electrooptic coefficient, which can be more than three times the value that was used by the conventional devices of poled electrooptic polymer. As the result of the d.c. bias and with high- $\mu\beta$ chromophores, a low half-wave voltage of 1.5 V was achieved with 2-cm-long birefringent waveguide modulators at the wavelength of 1.3 μm . Results of a 200° stability experiment indicate that this scheme also enables electrooptic polymer devices to meet the short-term high-temperature stability requirement because the polymer does not need to be poled prior to high-temperature steps.
 IT 213131-98-7
 RL: PRP (Properties)
 (DC biased electro-optic polymer waveguide modulators with low half-wave voltage and high thermal stability)
 RN 213131-98-7 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-(acetyloxy)ethylamino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]- (CA INDEX NAME)



L65 ANSWER 46 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 1999:451775 Document No. 131:300216 Polymer electro-optic devices for integrated optics. Steier, William H.; Chen, Antao; Lee, Sang-Shin; Garner, Sean; Zhang, Hua; Chuyunov, Vadim; Dalton, Larry R.; Wang, Fang; Ren, Albert S.; Zhang, Cheng; Todorova, Galina; Harper, Aaron; Fetterman, Harold R.; Chen, Datong; Udupa, Anand; Bhattacharya, Daipayan; Tsap, Boris (Department of Electrical Engineering, University of Southern California, Los Angeles, CA, 90089-0483, USA). Chemical Physics, 245(1-3), 487-506 (English) 1999. CODEN: CMPH2C. ISSN: 0301-0104. Publisher: Elsevier Science B.V..
 AB A review, with 36 refs., of recent advances in electrooptic polymers and in fabrication techniques that have made possible advances in polymer optical waveguides which bring them much closer to system ready. The processing of a new thermosetting FTC polymer and its incorporation into a high-frequency, low- V_{π} optical amplitude modulator were reviewed. The design and fabrication of 100 GHz modulators and their integration with rectangular metal waveguides using an anti-podal finline transition with a flexible Mylar substrate was discussed. High-speed polymer modulators with balanced outputs and the in-situ trimming of the output coupler was described. More complex waveguides using polymers were demonstrated by the photonic rf phase shifter. Techniques for integrating both passive and active polymers into the same optical circuit without the need for mode matching was presented and demonstrated. To reduce the V_{π} of a polymer amplitude modulator to 1 V or under, a technique of constant-bias voltage was demonstrated. Finally, a technique for direct maskless laser writing in fabrication of electrooptic polymer devices was reviewed.
 IT 247088-15-9P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (recent advances in electrooptic polymers in waveguides and other devices with integrated optics)
 RN 247088-15-9 CAPLUS
 CN Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethylamino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlylidene]-, polymer with 1,3-diisocyanatomethylbenzene (9CI) (CA INDEX NAME)

CM 1
 CRN 247088-12-6
 CMF C36 H42 N4 O3 S

Double bond geometry as shown.

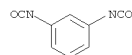


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L65 ANSWER 46 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

CM 2

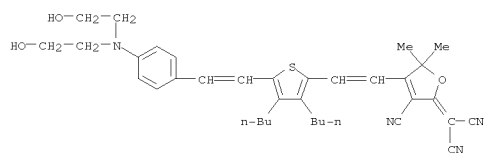
CRN 26471-62-5
CMP C9 H6 N2 O2
CCI IDS



D1= Me

IT 224746-62-7, Propanedinitrile,
[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]-
RL: RCT (Reactant); RACT (Reactant or reagent)
(recent advances in electrooptic polymers in waveguides and other devices with integrated optics)
RN 224746-62-7 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-

hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]- (CA INDEX NAME)



L65 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
1999:451741 Document No. 131:300096 The molecular and supramolecular engineering of polymeric electro-optic materials. Robinson, B. H.; Dalton, L. R.; Harper, A. W.; Ren, A.; Wang, F.; Zhang, C.; Todorova, G.; Lee, M.; Anisfeld, R.; Garner, S.; Chen, A.; Steier, W. H.; Houbrecht, S.; Persoons, A.; Ledoux, I.; Zyss, J.; Jen, A. K. Y. (Department of Chemistry, University of Washington, Seattle, WA, USA). Chemical

Physics,
245(1-3), 35-50 (English) 1999. CODEN: CMPHC2. ISSN: 0301-0104. Publisher: Elsevier Science B.V..
AB A new class of electrooptic chromophores, of which 2-dicyanomethylene-3-cyano-4-(2-[E-(4-N,N-di(2-acetoxyethyl)-amino)-phenylene-(3,4-dibutyl)thien-5]-E-vinyl)-5,5-dimethyl-2,5-dihydrofuran (denoted FTC) is the prototype, was prepared, characterized, and used to fabricate electrooptic devices. The mol. hyperpolarizability and thermal stability of these chromophore mols. are exceptional. Strong intermol. electrostatic interactions inhibit the efficient poling of these

mols. A statistical mech. theor. treatment is used to quant. predict the competition of poling, intermol. electrostatic interactions, and thermal effects in defining achievable acentric order and hence macroscopic optical nonlinearity. Theory is used to predict the optimum chromophore structure and material composition (chromophore loading in a polymer matrix) for maximum electrooptic activity and min. optical loss. Problems associated with lattice hardening to lock-in poling-induced order are discussed briefly.

IT 247088-15-9P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices)
RN 247088-15-9 CAPLUS
CN Propanedinitrile, [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-

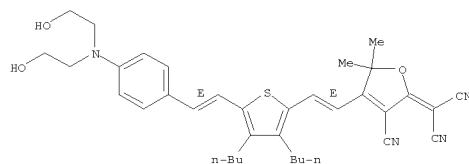
hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]-, polymer with 1,3-diisocyanatomethylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 247088-12-6
CMP C36 H42 N4 O3 S

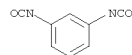
Double bond geometry as shown.

L65 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



CM 2

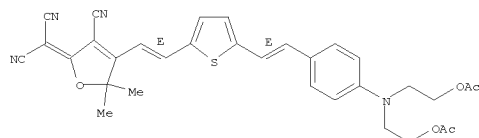
CRN 26471-62-5
CMP C9 H6 N2 O2
CCI IDS



D1= Me

IT 247088-14-8
RL: PRP (Properties)
(preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices)
RN 247088-14-8 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-(acetyloxy)ethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]- (CA INDEX NAME)

Double bond geometry as shown.

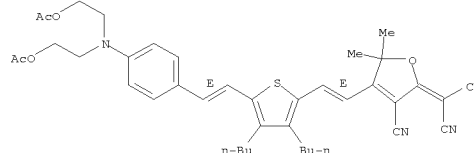


IT 247088-13-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices)

L65 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

RN 247088-13-7 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-(acetyloxy)ethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]- (CA INDEX NAME)

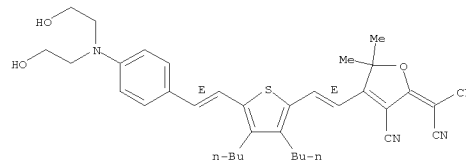
Double bond geometry as shown.



IT 247088-12-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices)
RN 247088-12-6 CAPLUS
CN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-

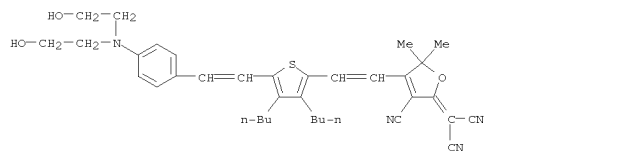
hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanilidene]- (CA INDEX NAME)

Double bond geometry as shown.



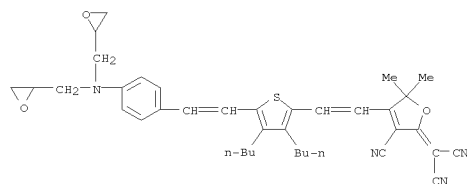
10560670.trn

L65 ANSWER 48 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 1999:211127 Document No. 130:353208 Epoxy thermosetting NLO material.
 Chen, Mingfei; Ren, Albert S.; Wang, Judy F.; Lee, Michael S.; Dalton, Larry R.;
 Zhang, Hua; Sun, Guilin; Steier, William H. (Loker Hydrocarbon Institute, University of Southern California, Los Angeles, CA, 90089, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(1), 162 (English) 1999. CODEN: ACPPAY. ISSN: 0032-3934.
 Publisher: American Chemical Society, Division of Polymer Chemistry.
 AB A High μ -beta chromophore with epoxide functional groups was concisely synthesized by a Heck reaction. The chromophore was successfully incorporated into an epoxy thermosetting material. A 30° C increase in electro-optic thermal stability was observed as compared to the polyurethane analog of the same chromophore.
 IT 224746-62-7P 224746-64-9P
 RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (chromophore; preparation and characterization of epoxy thermosetting nonlinear optical materials)
 RN 224746-62-7 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



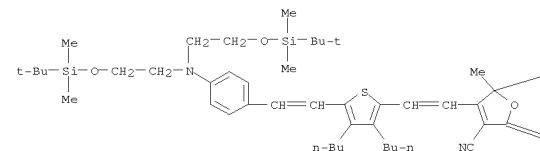
RN 224746-64-9 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-oxiranylmethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

L65 ANSWER 48 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 49 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 1999:211126 Document No. 130:352951 A trifunctionalized high $\mu\beta$ chromophore and its 3D polyurethane network with enhanced NLO alignment stability for electro-optic device applications. Ren, Albert S.; Chen, Mingfei; Lee, Michael S.; He, Mingqian; Dalton, Larry R.; Zhang, Hua; Sun, Guilin; Garner, Sean M.; Steier, William H. (Loker Hydrocarbon Institute, University of Southern California, Los Angeles, CA, 90089-1661, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(1), 160-161 (English) 1999. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.
 AB A trifunctionalized high μ -beta chromophore, LTR, based on a dicyanomethylendihydrofuran acceptor was synthesized by coupling of a hydroxyl functionalized amino donor, a di-Bu derivatized thiophene bridge, and a hydroxyl functionalized dicyanomethylendihydrofuran based acceptor. The chromophore was incorporated into a 3D thermosetting polyurethane network through a three hydroxyl group attachment to both ends of the chromophore, in anhydrous dioxane and excess tolylenediisocyanate (TDI).
 The dynamic alignment stability of the chromophore was enhanced by 25° over that of the single end attached polymer analog.
 IT 224967-75-3P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (LTR chromophore monomer; a trifunctionalized high $\mu\beta$ chromophore and 3D polyurethane network with enhanced NLO alignment stability for electrooptical devices)
 RN 224967-75-3 CAPLUS
 CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furanylidene]- (CA INDEX NAME)

PAGE 1-A



L65 ANSWER 49 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

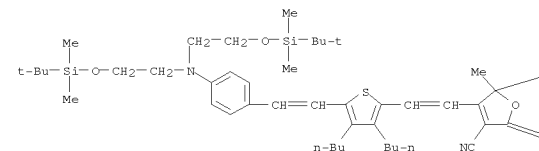
PAGE 1-B

(CH₂)₄-OH



IT 224967-76-4P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (a trifunctionalized high $\mu\beta$ chromophore and 3D polyurethane network with enhanced NLO alignment stability for electrooptical devices)
 RN 224967-76-4 CAPLUS
 CN Propanedinitrile, [4-[2-[5-[2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furanylidene]-, polymer with 2,4-diisocyanato-1-methylbenzene and 2,2',2''-nitrilotris[ethanol] (9CI) (CA INDEX NAME)
 CM 1
 CRN 224967-75-3
 CMF C51 H76 N4 O4 S S12

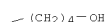
PAGE 1-A



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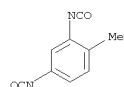
L65 ANSWER 49 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B



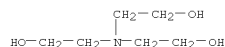
CM 2

CRN 584-84-9
CMF C9 H6 N2 O2

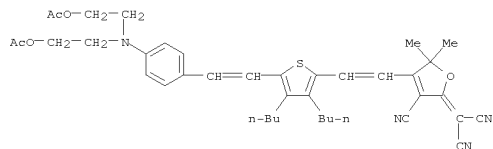


CM 3

CRN 102-71-6
CMF C6 H15 N O3



L65 ANSWER 50 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L65 ANSWER 50 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN

1999:107637 Document No. 130:259118 Femtosecond, Frequency-Agile,
Phase-Sensitive-Detected, Multi-Wave-Mixing Nonlinear Optical
Spectroscopy

Applied to π -Electron Photonic Materials. Drenser, K. A.; Larsen, R. J.; Strohkendl, F. P.; Dalton, L. R. (Loker Hydrocarbon Research Institute, University of Southern California, CA, 90089-1662, USA). Journal of Physical Chemistry A, 103(14), 2290-2301 (English) 1999 . CODEN: JPACPH. ISSN: 1089-5639. Publisher: American Chemical Society.

AB Degenerate four-wave mixing (DFWM) spectroscopy is modified to exploit femtosecond pulses, phase-sensitive-detection, frequency (wavelength) agility, two-color (nearly degenerate multi-wave mixing) radiation, and improved signal-to-noise capabilities that can be realized through a combination of new solid state lasers, nonlinear optical components, and novel design concepts. The resulting time-resolved nonlinear optical techniques permit instantaneous optical nonlinearities, such as two-photon

absorption cross sections, to be accurately measured over the spectral range from 450 to 2500 nm (and with significantly greater effort from 225 to 5000 nm). The power of the new techniques is illustrated by their application to the definition of Hg two-photon resonances of C60 and C70 as well as to the characterization of optical nonlinearities in two

linear chromophores of putative utility for sensor protection and electrooptic modulation. Explicitly, these measurements provide accurate determination of both transition energies and transition moments (matrix elements connecting the

two photon levels). Results are compared to those previously reported in the literature illustrating the advantages and problems associated with particular measurement techniques. All of the mols. studied exhibit two-photon absorption coeffs. comparable to that of GaAs, the most studied

putative sensor protection material (based on use of electronic optical nonlinearity). Femtosecond pulse techniques are shown, in all cases, to be necessary to avoid complications arising from excited-state absorption and relaxation phenomena. The importance of phase-sensitive detection in identifying complications from overlapping transitions is illustrated.

IT 213131-98-7

RL: PRP (Properties)
(femtosecond, frequency-agile, phase-sensitive-detected, multi-wave-mixing nonlinear optical spectroscopy applied to π -electron photonic materials)

RN 213131-98-7 CAPLUS

CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

L65 ANSWER 51 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN

1998:550105 Document No. 129:246191 Original Reference No. 129:50125a,50128a

High electro-optic coefficient from a polymer containing high $\mu\beta$ chromophores. Wang, Fang; Ren, Albert S.; He, Mingqian; Harper, Aaron W.;

Dalton, Larry R.; Garner, Sean M.; Zhang, Hua; Chen, Antao; Steier, William H. (Department of Chemistry, Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, CA, 90089-1661, USA). Polymeric Materials Science and Engineering, 78, 42-43 (English) 1998. CODEN: PMSEEG. ISSN: 0743-0515. Publisher: American Chemical Society.

AB The electrooptical coefficient (r33) values of PMMA doped (16.6%) with a new furan ring-based NLO chromophore (FTC-2AcO) are reported. FTC-2AcO has excellent solubility, high thermal stability, a relatively low chromophore

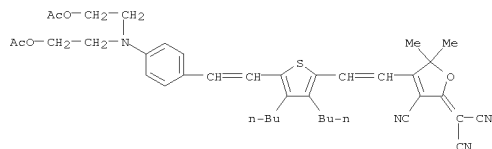
absorption maximum, and a very high r33.

IT 213131-98-7

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrooptical coefficient of NLO chromophore in PMMA)

RN 213131-98-7 CAPLUS

CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

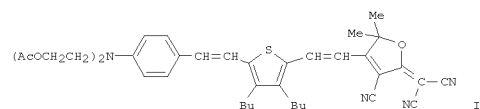


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L65 ANSWER 52 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
1998:532284 Document No. 129:276799 Original Reference No.
129:56435a,56438a

Design, synthesis and characterization of a novel substituted dicyanomethylendihydrofuran based high- β NLO chromophore and its polymers with exceptionally high electro-optic coefficients. Wang, Fang; Ren, Albert A.; He, Mingqian; Lee, Michael S.; Harper, Aaron W.; Dalton, John R. *Journal of Materials Chemistry*, 1998, 8, 1065-1066 (English). (Loker Hydrocarbon Inst. and Dep. Chem., Univ. Southern California, Los Angeles, CA, 90089-1661, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 39(2), 1065-1066 (English). 1998. CODEN: POLYPR 1065-1066. 1998. 1998. 1998. American Chemical Society, Division of Polymer Chemistry.

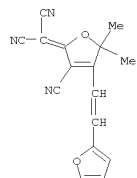
GI



AB A second order nonlinear optical chromophore having the structure I and exhibiting high mol. nonlinearity, high thermal stability, and low optical absorption was prepared and characterized. Excellent optical quality films were obtained when I was co-dissolved in 1,2-dichloroethane with poly(Methacrylate) (PMMA) and spin-cast onto ITO coated glass substrates. An electrooptic coefficient of 56.9 pm/V at 1.06 μ m was achieved with a loading d. of 16.6 weight %. The film absorption maximizes at 630 nm and the propagation optical loss was found to be 0.75 dB/cm using the "immersion technique". An observed attenuation of the electrooptic coefficient was predicted by the extended London theory when the mol. shape was taken into account. Covalent attachment of I to a crosslinked polyurethane network resulted in a maximum electrooptic coefficient of 42 pm/V at 1.06 μ m with a loading of 15 weight %. The decrease of the electrooptic coefficient of the polyurethanes compared to those of the PMMA composites was significant and attributed to the lower poling efficiency of the covalently attached system where the chromophores have less freedom than in the case of doped systems. Bias poled modulators and high-speed electrooptic modulators were fabricated using the materials.

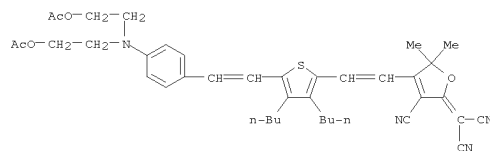
IT 21331-98-7D, reaction products with polyurethanes
RL: FRP (Properties)
(design, synthesis and characterization of substituted dicyanomethylendihydrofuran-based high- β nonlinear optical

165	ANSWER 53 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STN
1995:752764	Document No. 124:85310 Original Reference No. 124:1805a,1808a Synthesis of substituted dicyanomethylendihydrofurans. Melikian, Gaguik; Rouessac, Francis P.; Alexandre, Christian (Laboratoire de Synthèse Organique, Faculté des Sciences, Le Mans, 72017, Fr.). Synthetic Communications, 25(19), 3045-51 (English) 1995. CODEN: SYNCAV. ISSN: 0039-7911. OTHER SOURCES: CASREACT 124:8531. Publisher: Dekker.
AB	A simple and efficient method for the preparation of the title compds. is described from α -ketols and malononitrile in the presence of sodium ethylate at room temperature. These compds. lead to unsatd. derivs. by condensation with aldehydes. For example, condensation reaction of propanedinitrile and 3-hydroxy-3-methyl-2-butanone gave (3-cyano-2,5-dihydro-4,5,5-trimethyl-2-furanylidene)propanedinitrile.
IT	171082-36-3P RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of dicyanomethylendihydrofurans from hydroxy ketones and propanedinitrile)
RN	171082-36-3 CAPLUS
CN	Propanedinitrile, 2-[3-cyano-4-[2-(2-furanyl)ethenyl]-5,5-dimethyl-2(5H)- furanylidene]- (CA INDEX NAME)



L65 ANSWER 52 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
chromophore and chromophore doped and modified polymers with
exceptionally high electrooptic coeffs.)

213131-98-7 CAPLUS
CN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(
(acetyloxy)ethyl]amino)phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-
cyano-5,5-dimethyl-2(5H)-furanylidene] (CA INDEX NAME)



RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (design, synthesis and characterization of substituted dicyanomethylendihydrofuran-based high- β nonlinear optical chromophore and chromophore doped and modified polymers with exceptionally high electrooptic coeffs).

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